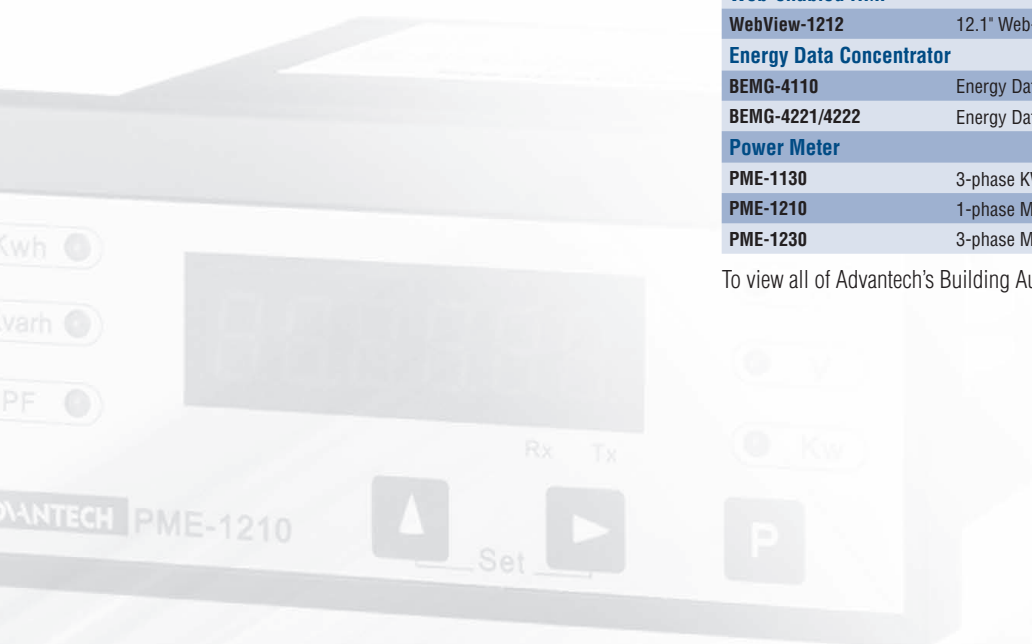


Building Automation Systems

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To view all of Advantech's Building Automation Systems, please visit www.advantech.com/products.



Empower BA Systems with Open and Web-enabled Technologies

System Overview

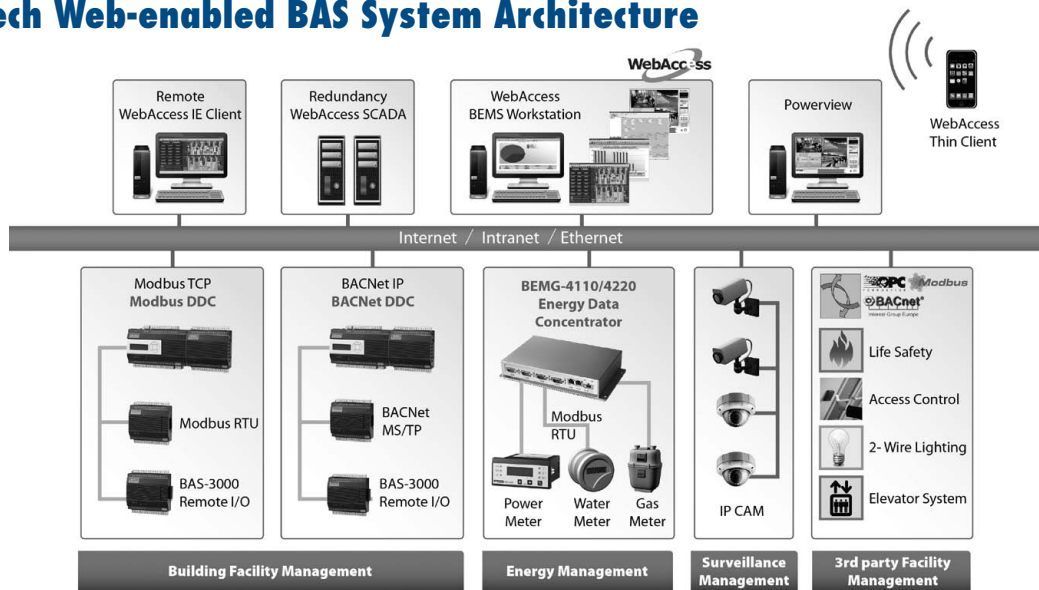
Advantech provides building automation solutions for the i-Energy, i-Security, i-Facility, i-Management sectors with energy-saving solutions, video surveillance systems, HVAC and lighting systems, building for control and monitoring systems in this domain-focused market.

Advantech's BAS web-enabled system adopts open building networking standards - Modbus and BACnet. It also features the powerful BASPro programming tool with BA domain function blocks, such as AHU control, HVAC, sequential control, PID control, alarm, and schedule functions that are convenient for engineers to quickly develop specific applications.

Advantech Building Energy Management System software (BEMS) also receives and analyzes energy consumption patterns to enact peak-shaving, thus saving high utility rate charges.

Advantech provides a wide range of methods to expand, upgrade, and optimize your facility systems with an intelligent building solution that make buildings more comfortable, safe, energy-saving and less costly to operate.

Advantech Web-enabled BAS System Architecture



Browser-based HMI/SCADA Software

Web Browser Client to View and Control

WebAccess SCADA software allows users to view, access and control their equipment through Microsoft's Internet Explorer web browser.

Distributed Architecture

SCADA nodes run independent of any other node. Each SCADA node communicates to automation equipment using communication driver supplied with WebAccess.

Central Database Server

The project node is a centralized database server of configuration database and configurable process database through ODBC interface.

Scheduler

The Scheduler provides control and changes set point status based on time and date.

The Scheduler is also used in process control and manufacturing applications. All these schedule configurations can be modified remotely through the internet.

Energy Management

Advantech BEMS is a browser-based energy profiling tool designed to help manage building automation applications. Users can trend and analyze energy data depending on the combination of values and reports selected, identify correlations between building energy consumption patterns and equipment usage to develop improved processes and profiles.

Modbus/BACnet Web-enabled DDC Controllers

Advantech Web-enabled DDC BAS-3000 family controllers are powerful in the industry. They provide stand-alone operation, running DDC control programs, schedules, and issuing their own alarms and events. In addition, engineers can remotely upload and download DDC programs as well as service and maintenance.

Web-enabled HMI

Advantech's WebView-1200 series is a web-based HMI and SCADA platform. All of the features are available through a browser, including animated graphic displays, trends, alarms, schedules and more.

Energy Data Concentrator

Advantech BEMG-4000 series featuring pre-installed and pre-tested WinCE WebAccess helps customers reduce costs and time in selecting products, whilst setting up an IIS and system that also guarantees product quality. For energy saving, we provide data transfer from Advantech's power meter or 3rd party meter to Advantech's BEMS to help customers easily to plan and manage their energy strategy.

Power Meter

To complete the energy saving solution, Advantech provides PME-1000 series power meters for sub-metering applications, ranging from power distribution, small motor control to lighting load circuit. The measurement data can be viewed directly from local display, and also can be transmitted through a RS-485 port using the Modbus protocol.

Selection Guide

Direct Digital Controller: BAS-3000 Family

NEW



| Model Name | | BAS-3500BC | BAS-3512 | BAS-3520 | BAS-3520C |
|--------------------------|---------------------|---|---|---|---|
| Description | | Ethernet-based, Standalone Programmable BACnet DDC Controller | 12-ch Web-enabled DDC Controller | 20-ch Web-enabled DDC Controller | 20-ch Web-enabled Chiller DDC Controller |
| Protocol | | BACnet MS/TP, BACnet IP | Modbus/TCP, Modbus/RTU | Modbus/TCP, Modbus/RTU | Modbus/TCP, Modbus/RTU |
| Power | | 24V _{DC} , 24V _{AC} ; 3W @ 24V _{DC} | 24V _{DC} , 24V _{AC} ; 10W @ 24V _{DC} | 24V _{DC} , 24V _{AC} ; 10W @ 24V _{DC} | 24V _{DC} , 24V _{AC} ; 10W @ 24V _{DC} |
| Watchdog Timer | | Yes | Yes | Yes | Yes |
| LCM Module Support | | No | Yes | Yes | Optional |
| Programming Tool Support | | BASPro | BASPro | BASPro | BASPro |
| Expansion | | N/A | 3 local I/O expansion modules | 3 local I/O expansion modules | 3 local I/O expansion modules |
| Communication Ports | | 4 Ports COM1: RS-485 BACnet MS/TP COM2: RS-485 BACnet MS/TP COM3: RS-485 Modbus RTU Master COM4: RS-485 A Bus Extension (Advantech product use) | | | |
| Universal Input | Number of Inputs | - | - | 4 | 12 |
| | Signal type | - | - | 0~10 V; 0~20 mA, 4~20 mA | 0~10 V; 0~20 mA, 4~20 mA |
| | Direct sensor input | - | - | Pt-100 RTD, Pt-1000 RTD, Thermistor 3K, 10K | Pt-100 RTD, Pt-1000 RTD, Thermistor 3K, 10K |
| Analog Output | Number of Inputs | - | - | 4 | - |
| | Signal type | - | - | 0~10 V; 0~20 mA, 4~20 mA | - |
| Digital Input | Number of Inputs | - | 8 | 8 | 12 (shared with UI) |
| | Dry Contact | | Logic High: Close Logic Low: Open | Logic High: Close Logic Low: Open | Logic High: Close Logic Low: Open |
| Digital Output | Number of Outputs | - | 4 | 4 | 8 |
| Operating Temperature | | -10 ~ 60°C (14 ~ 140°F) | -10 ~ 60°C (14 ~ 140°F) | -10 ~ 60°C (14 ~ 140°F) | -10 ~ 60°C (14 ~ 140°F) |
| Storage Temperature | | -20 ~ 80°C (-4 ~ 176°F) | -20 ~ 80°C (-4 ~ 176°F) | -20 ~ 80°C (-4 ~ 176°F) | -20 ~ 80°C (-4 ~ 176°F) |
| Operating Humidity | | 20 ~ 95% (Non-condensing) | 20 ~ 95% (Non-condensing) | 20 ~ 95% (Non-condensing) | 20 ~ 95% (Non-condensing) |
| Storage Humidity | | 0 ~ 95% (Non-condensing) | 0 ~ 95% (Non-condensing) | 0 ~ 95% (Non-condensing) | 0 ~ 95% (Non-condensing) |
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BACnet Remote I/O Modules



| Model Name | | BAS-3018BC | BAS-3024BC | BAS-3050BC | BAS-3051BC |
|------------------------|------------------------------------|--|--|--|--|
| Description | | 8-ch UI BACnet Remote Module | 4-ch UI, 4-ch AO, 4-ch DO BACnet Remote Module | 8-ch DI, 8-ch DO BACnet Remote Module | 16-ch DI BACnet Remote Module |
| Protocol | | BACnet MS/TP Server | BACnet MS/TP Server | BACnet MS/TP Server | BACnet MS/TP Server |
| Power | | 24V _{DC} , 24V _{AC} ; 3W @ 24V _{DC} | 24V _{DC} , 24V _{AC} ; 4W @ 24V _{DC} | 24V _{DC} , 24V _{AC} ; 3W @ 24V _{DC} | 24V _{DC} , 24V _{AC} ; 3W @ 24V _{DC} |
| Universal Input | Number of Inputs | 8 | 4 | - | - |
| | Signal type | 0~10 V; 0~20 mA, 4~20 mA | 0~10 V; 0~20 mA, 4~20 mA | - | - |
| | Direct sensor input | RTD, Pt-100/1000, Thermistor 3K, 10K | RTD, Pt-100/1000, Thermistor 3K, 10K | - | - |
| Analog Output | Number of Outputs | - | 4 | - | - |
| | Signal type | - | 0~10 V; 0~20 mA, 4~20 mA | - | - |
| Digital Input | Number of Inputs | - | - | 8 | 16 |
| | Number of Outputs | - | 4 | 8 | - |
| Digital Output | Rated Load Voltage | - | 10-35V _{DC} , 1A (Per Channel) | 10-35V _{DC} , 1A (Per Channel) | - |
| | PWM Period (min)/Pulse Width (min) | - | 1 sec. / 0.1 sec. | 1 sec. / 0.1 sec. | - |
| Dimensions (W x H x D) | | 120 x 120 x 44 mm | 120 x 120 x 44 mm | 120 x 120 x 44 mm | 120 x 120 x 44 mm |
| Watchdog Timer | | Yes | Yes | Yes | Yes |
| BACnet Certification | | Yes | Yes | Yes | Yes |
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Modbus I/O Modules



| Model Name | | BAS-3018 | BAS-3024 | BAS-3050 | BAS-3051 | BAS-3060 |
|------------------------|------------------------------------|--|--|--|--|--|
| Description | | 8-ch UI Expansion Module | 4-ch UI, 4-ch AO, 4-ch DO Expansion I/O Module | 8-ch DI, 8-ch DO Expansion I/O Module | 16-ch DI Expansion I/O Module | 8-ch DO Relay Expansion I/O Module |
| Communication | | Modbus RTU | Modbus RTU | Modbus RTU | Modbus RTU | Modbus RTU |
| Power | | 24V _{DC} , 24V _{AC} ; 3W @ 24V _{DC} | 24V _{DC} , 24V _{AC} ; 4W @ 24V _{DC} | 24V _{DC} , 24V _{AC} ; 3W @ 24V _{DC} | 24V _{DC} , 24V _{AC} ; 3W @ 24V _{DC} | 24V _{DC} , 24V _{AC} ; 3W @ 24V _{DC} |
| Universal Input | Number of Inputs/Res. | 8 / 16-bit | 4 / 16-bit | - | - | - |
| | Signal type | 0~10 V; 0~20 mA, 4~20 mA | 0~10 V; 0~20 mA, 4~20 mA | - | - | - |
| | Direct sensor input | RTD, Pt-100/1000, Thermistor 3K, 10K | RTD, Pt-100/1000, Thermistor 3K, 10K | - | - | - |
| Analog Output | Number of Outputs/Res. | - | 4 / 12-bit | - | - | - |
| | Signal type | - | 0~10 V; 0~20 mA, 4~20 mA | - | - | - |
| Digital Input | Number of Inputs | - | - | 8 | 16 | - |
| | Number of Outputs | - | 4 | 8 | - | 8 |
| Digital Output | Rated Load Voltage | - | 10-35V _{DC} , 1A (Per Channel) | 10-35V _{DC} , 1A (Per Channel) | - | AC: 5A @ 250V; DC: 5A @ 30V |
| | PWM Period (min)/Pulse Width (min) | - | 1 sec. / 0.1 sec. | 1 sec. / 0.1 sec. | - | 1 sec. / 0.1 sec. |
| Dimensions (W x H x D) | | 120 x 120 x 44 mm | 120 x 120 x 44 mm | 120 x 120 x 44 mm | 120 x 120 x 44 mm | 120 x 120 x 44 mm |
| Watchdog Timer | | Yes | Yes | Yes | Yes | Yes |
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| | |
|----|------------------------------|
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Selection Guide

Energy Data Concentrators

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| Model | | BEMG-4110 | BEMG-4220 | BEMG-4221 | BEMG-4222 |
|----------------------------------|---------------|---|---|---|---|
| Description | | Building Energy Data Concentrator with 4 COM, 1 LAN | Building Energy Data Concentrator with 4 COM, 2 LAN | Building Energy Data Concentrator with 4 COM, 2 LAN | Building Energy Data Concentrator with 8 COM, 2 LAN |
| CPU | | AMD Geode LX800 500MHz | Celeron M, 1GHz | Atom N450, 1.67 GHz | Atom Dual Core D510, 1.67GHz |
| Memory | | 256 MB DDR SDRAM | 512 MB DDR SDRAM | 2G DDR2 SRAM | 2G DDR2 SRAM |
| Display | | VGA | - | VGA | VGA |
| Communications | Serial Ports | 2 x RS232/485, 2 x RS232/422/485 | 2 x RS232, 2 x RS232/422/485 | 2 x RS232/485, 2 x RS232/422/485 | 6 x RS232/485, 2 x RS232/422/485 |
| | USB Ports | 2 | 2 | 6 | 6 |
| | Network (LAN) | 1 x 10/100Base-T | 2 x 10/100Base-T | 2 x 10/100/1000Base-T | 2 x 10/100/1000Base-T |
| CompactFlash | | 1G Compact Flash | 1G Compact Flash | 1G Compact Flash | 1G Compact Flash |
| Printer Ports | | - | 1 | 1 | - |
| Watchdog Timer | | Yes | - | Yes | Yes |
| Power Input Range | | 10~48 V _{DC} | 9~36 V _{DC} | 9~36 V _{DC} | 9~36 V _{DC} |
| Power Consumption | | 15W | 24W | 12W | 16W |
| Operating Temperature | | -10 ~ 55°C (14 ~ 131°F) | -20 ~ 50°C (-4 ~ 122°F) | -10 ~ 70°C (14 ~ 158°F) | -10 ~ 70°C (14 ~ 158°F) |
| Dimensions (W x D x H) | | 188.8 x 106.5 x 35.5 mm (7.5" x 4.2" x 1.4") | 255 x 152 x 50 mm (10" x 6.0" x 2.0") | 255 x 152 x 50 mm (10" x 6.0" x 2.0") | 255 x 152 x 59 mm (10" x 6.0" x 2.3") |
| Software Specification | | | | | |
| Operating System | | WinCE 5.0 | WinCE 5.0 | WinCE 5.0 | WinCE 5.0 |
| Web Clients | | 2 | 2 | 2 | 2 |
| Number of devices connected | | 64 | 128 | 128 | 128 |
| Configure/ service | | Web configure & service | | | |
| Certification | | CE, FCC Class A, CCC | | | |
| Ingress Protection (Front Panel) | | IEC 60068-2-2, IEC68 2-6 | IEC 68 2-27, IEC 68 2-64 | IEC 60068-2-2, IEC 60068-2-64 | IEC 60068-2-2, IEC 60068-2-64 |
| Protocols for meters | | DL/T645-1997, CJ/T188-2004, GB/T19582-2008, Modbus | | | |
| Web functions with host | | Command Received, Alarm reporting, Data encapsulation, Data store and forward, DNS supporting | | | |
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Power Meters

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| Model | | PME-1130 | PME-1210 | PME-1230 |
|----------------------------------|--------------------|---|---|---|
| Description | | 3-Phase KW & KWH Energy Meter | 1-Phase Multifunction Power Meter | 3-Phase Multifunction Power Meter |
| Power Supply | | 110 V _{AC} : 93 to 126 V _{AC} 220 V _{AC} : 187 to 253 V _{AC} | 110 V _{AC} : 93 to 126 V _{AC} 220 V _{AC} : 187 to 253 V _{AC} | 110 V _{AC} : 93 to 126 V _{AC} 220 V _{AC} : 187 to 253 V _{AC} |
| Power Consumption | | 5VA | 5VA | 5VA |
| Communication Interface | Bus | Photo-isolated RS-485 | Photo-isolated RS-485 | Photo-isolated RS-485 |
| | Protocol | Modbus/RTU (format: 8/N/1) | Modbus/RTU (format: 8/N/1) | Modbus/RTU (format: 8/N/1) |
| | Baud Rate | 1200/2400/4800/9600 | | |
| Voltage Measurement | Meter ID | 0 ~ 254 | 0 ~ 254 | 0 ~ 254 |
| | Phase/Wire | - | 1P2W | 1P3W/3P3W/3P4W |
| | Phase Voltage | - | 80 ~ 350 V _{AC} | 80 ~ 350 V _{AC} |
| Current Measurement (Std. 5A CT) | Accuracy | - | ±0.5% full scale | ±0.5% full scale |
| | Resolution | - | 1 mA | 1 mA |
| | Current | 5 mA ~ 5 A | 5 mA ~ 5 A | 5 mA ~ 5 A |
| Power Measurement (Total) | Accuracy | - | ±0.5% full scale | ±0.5% full scale |
| | Resolution | 1W (per phase) | 1W (per phase) | 1W (per phase) |
| | Accuracy | 1% full scale | 1% full scale | 1% full scale |
| Energy Measurement (Total) | Display Resolution | | 0.1 kWh (Range 0 ~ 9,999,999.9kWh) | |
| | Record Resolution | | 0.01 kWh (Range 0 ~ 9,999,999.99kWh) | |
| | kWh Accuracy | | 1% with PF 0.5 ~ 1.0 | |
| Operating Temperature | | -10 ~ 70°C (14 ~ 158°F) | | |
| Operating Humidity | | 0 ~ 90% RH non-condensing | | |
| Reliability | Communication | | IEC61000-4-4 1kV | |
| | Surge Test | | IEC61000-4-5 4kV | |
| | EFT Test | | IEC61000-4-4 1kV | |
| Dimensions (W x H x D) | | | 110 x 50 x 115 mm | |
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Web-enabled HMI

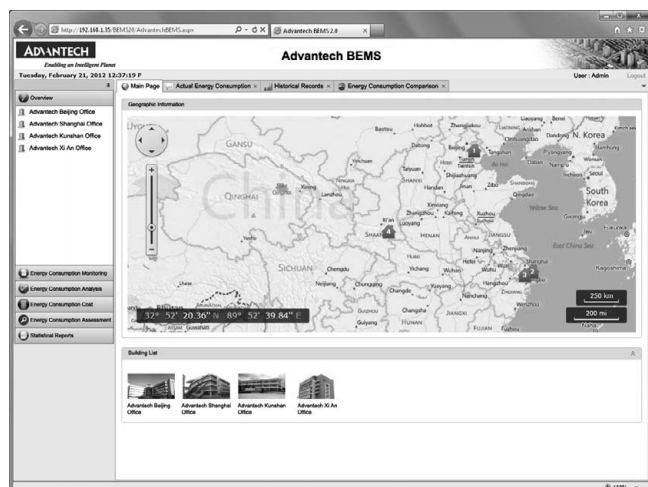


| Model | | WebView-1206 | WebView-1210 | WebView-1212 | WebView-1215 |
|------------------------|---------------|---|--|---|--|
| Description | | Web-enabled HMI | Web-enabled HMI | Web-enabled HMI | Web-enabled HMI |
| CPU | | Intel® Atom™ 1.33 GHz | Intel® Celeron® M, 1GHz | Intel® Celeron® M, 1GHz | Intel® Celeron® M, 1GHz |
| Memory | | 1G DDR2 SDRAM | 512 MB DDR SDRAM | 1G DDR SDRAM | 1G DDR SDRAM |
| Display | | VGA | - | VGA | VGA |
| Display | Size | 5.7" | 10.4" | 12.1" | 15" |
| | Resolution | 640 x 480 | 800 x 600 | 800 x 600 | 1024 x 768 |
| Communications | Serial Ports | 1 x RS232, 1 x 422/485 | 2 x RS232, 1 x RS232/422/485 | 3 x RS232, 1 x RS232/422/485 | 2 x RS232, 1 x RS232/422/485 |
| | USB Ports | 2 | 2 | 4 | 2 |
| | Network (LAN) | 2 x 10/100/1000Base-T | 2 x 10/100Base-T | 2 x 10/100Base-T | 1 x (10/100BaseT) 1 x (10/100/1000BaseT) |
| CompactFlash | | 1G Compact Flash | 1G Compact Flash | 1G Compact Flash | 1G Compact Flash |
| Watchdog Timer | | Yes | Yes | Yes | Yes |
| Power Input Range | | 18~32 V _{DC} | 18~32 V _{DC} | 18~32 V _{DC} | 18~32 V _{DC} |
| Power Consumption | | 17W | 41W | 40W | 42W |
| Operating Temperature | | -20 ~ 60°C (-4 ~ 140°F) | 0 ~ 50°C (32 ~ 122°F) | 0 ~ 50°C (32 ~ 122°F) | 0 ~ 50°C (32 ~ 122°F) |
| Dimensions (W x D x H) | | 195 x 148 x 58 mm (7.68" x 45.83" x 2.28") | 286 x 226 x 58 mm (11.26" x 8.9" x 2.28") | 311 x 237 x 52.3 mm (12.24" x 9.33" x 2.06") | 383 x 307 x 64.5 mm (15.08" x 120.9" x 2.54") |
| Software Specification | | | | | |
| Operating System | | WinCE 5.0 | | | |
| Certifications | | CCC, CE, FCC, UL | | | |
| Configure/ service | | Web configuration & service | | | |
| Web Clients | | 2 | | | |
| I/O Tag Number | | 600 | | | |
| Alarm Logging | | 1000 | | | |
| Action Logging | | 1000 | | | |
| Number of Graphic | | 100 | | | |
| Number of data logging | | 50 | | | |
| Recipes per Project | | 100 | | | |
| Time Zone Groups | | 99 | | | |
| Device Loop Groups | | 99 | | | |
| Equipment Groups | | 99 | | | |
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- 13 PACs
- 14 M2M I/O
- 15 Distributed Nano Controllers
- 16 RS-485 I/O
- 17 Ethernet I/O
- 18 DAQ Boards

Advantech BEMS

Building Energy Management System



Features

- Browser-based energy management system
- Rich charts to view energy consumption from various perspectives
- Supports flexible report functions
- Various data analysis functions to generate energy consumption patterns
- Advanced demand limit control
- Geographic Information System (GIS) for energy management across multiple buildings

Introduction

Advantech BEMS is a set of advanced Web-based energy management system aiming at helping customers with energy consumption management. This system can collect energy consumption data of different classifications and sub-items. Customers can create energy management projects and groups to manage these data according to their requirements. Various charts and its statistical analysis function can help customers to find out an optimized energy-saving strategy.

Specifications

Energy Profile

Each management group provides energy consumption profile on a hourly, daily, monthly and yearly basis, and thus helping customers to know its own energy consumption situation and finding out the abnormal value. All kinds of related energy consumption indicators, such as Energy Use Intensity (EUI) provide data support to energy consumption statistic and energy audit. Some reference functions, such as temperature and humidity help to analyze the correlation between consumption data and environment data.

Energy Ranking

Energy consumption ranking during different time periods helps to find out the energy efficiency device units.

Energy Comparison

Energy comparison between different energy management groups during different time periods.

Average Daily Profile

Average daily profile per 15 minutes on each day. It helps customers to know its energy consumption pattern and find out the peak requirement more than expected; therefore customers can refer to it when signing the contract with power company.

Deviation Report

Deviation between energy consumption value and set value during different time periods on any day. The red value represents the increment trend of energy consumption.

Max/Min Value Analysis

Max/Min value during different time periods helps to analyze the relations between energy consumption and time.

Primary Energy Profile

Converts energy consumption to heat (MJ), standard coal, crude oil and coal as well as other primary energy consumption value and their relative CO2 emission value.

Cost Profile

Each management group provides cost profile on a daily, monthly and yearly basis. It calculates the cost based on the data in the energy table and rate structure in order to manage the energy cost. Customers can set an energy consumption benchmark. Set the budget based on the deviation from the actual cost will contribute to the decreasing of the risk in the process of purchasing.

Cost Ranking

Energy consumption cost ranking during different time periods helps to find out the max./min. energy efficiency device units.

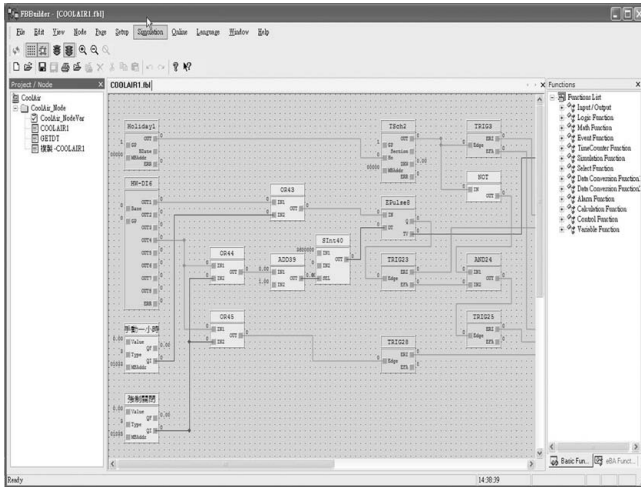
Statistical Report

Statistics report (Y/M/D) with classification and sub-items allows customers to view clearly the energy consumption and helps them to make a reasonable allocation and use of energy.

Ordering Information

- **WebAccess-70-AE** WebAccess V7.0 software suit package
- **968W0070A0** WebAccess BEMS control file

Note: Users need to have WebAccess HMI/SCADA and its control file, and purchase BEMS Software including WebAccess-70-AE and 968W0070A0



Features

- Graphical programming environment
- Supports remote download and maintenance by Ethernet
- Pre-defined function blocks to save development time
- Scheduler and sequential control
- BA HVAC calculation
- Auto-tuning PID and RAMP/SOAK control algorithm
- Local alarms and event notifications

Introduction

BASPro is a programming software package suitable for building automation application, perfectly integrating with BAS-3500 Series DDC Controller (Direct Digital Controller). BASPro features rich function blocks like mathematical calculation, data conversion, logic operation, alarm, event and timer, and control algorithm (PID, Ramp, ON/OFF switch control). Moreover, BASPro also provides many BA domain function blocks, such as scheduler, HVAC calculation and sequential control, which are commonly used in building applications. Developers can benefit from saving development time by the function blocks. Engineers can develop applications on their computer. After the application program is complete, it can be downloaded to the BAS-3500 series through Ethernet. Then BAS-3500 series becomes a standalone controller since it can execute the program by itself. Besides, BASPro delivers simulation function that you can observe the program execution situation before the program is downloaded to the BAS-3500 series.

Features

Graphical Programming Environment

BASPro features completely graphical programming environment, it makes the engineers easily develop their function and control logic in various applications.

Supports Remote Download and Maintenance

BASPro supports Ethernet communication, which can deliver remotely downloading and uploading control logic programs. Users also can maintain their device by remote control.

Powerful and Flexible Function Blocks

There can be up to 30 control pages per controller, each page supports up to 50 function blocks (max.4 PID blocks per page, total 16 PID per controller). BASPro delivers plenty of built-in function blocks, integrating many control and calculation functions into one simple block. Developers don't need to write program code for the control function blocks by themselves, and simply uses these function blocks to complete their applications. It helps greatly decreasing the development time. Below are some lists of the function blocks:

- Mathematical Calculation**
Addition, subtraction, multiplication, division, exponentiation, square root operation, logarithm operation, natural logarithm operation, absolute operation, maximum number, minimum number, scale conversion.
- Logic Operation**
Boolean calculation (such as AND, OR, NOT, NAND, NOR, XOR, ...), value comparison, trigger function, etc.
- Timer/Counter**
Create time delay, count event, timing measurement, pulse, etc.
- Data Conversion**
Conversion for various data type, such as convert float type data to integer data type, convert boolean data to numeric data, combine byte to word, unpack byte to bit, etc.

- Control and Alarm**
PID control, Ramp/Soak, ON/OFF switch control, alarm setting (H, L, HH, LL alarm), etc.
- Broadcast Variable Function**
Sharing broadcast variable provides simple and efficient way to make the DDC quickly share data between devices in the same network.
- Schedule**
Provide schedule function to implement multiple purpose scheduling task controls with the very friendly configuration edit page, such as Holiday, Weekly and Device group. We also provide campus schedule control using in campus.
- Sequential Control**
Provide the multiple stage control function for 4 or 8 stage control units. It will turn on or turn off the unit device according to PV, SP, deadband and control mode parameters. The sequential order includes first in last out, first in first out, depending on the time length of operation, etc.
- HVAC Function**
We support HVAC function include Dew Point, Vapor Pressure, Wet Bulb, and Enthalpy Calculation, also include calculation of absolute humidity and AHU function block.
- BA Domain Focus Function**
BA Domain function module is provided for the specific control equipment, such as pumps, solenoid valves, fans, dampers, air handling units. Engineers can make system integration with different devices not only simplifies the design work, but also reduce the workload of the project.

Note: This software is only available as a bundle with BAS-3512, BAS-3520, and BAS-3520C

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- 3 Energy Automation
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BAS-3512

BAS-3520

12-ch Web-enabled DDC Controller

20-ch Web-enabled DDC Controller



Features

- Standalone programmable controller
- BASPro programming software provides BA domain function (scheduler, HVAC calculation, sequence...)
- Auto-tuning PID control
- Calendar schedule control
- Alarm and event notifications
- Provides RS-485 to connect with remote I/O devices
- Up to 3 local I/O expansion modules
- Remote programming and maintenance through Ethernet
- LCM display (optional)

Introduction

BAS-3512/3520 is a standalone programmable controller specially designed for building automation (BA) applications. Designed as a typical DDC (Direct Digital Controller), BAS-3512/3520 delivers various of onboard I/O including universal input, analog output, digital input and digital output, providing flexible options to satisfy versatile application requirements. It also features powerful BASPro programming tool for engineers to quickly develop their application. BASPro delivers many function blocks suitable for BA application, such as scheduler, HVAC calculation, sequential control, PID control, alarm, and event. Its compact size makes it an ideal solution to fulfill BA installation environment. The I/O expansion modules (BAS-3018, BAS-3024, BAS-3050, BAS-3051 and BAS-3060) provide more I/O points and make the system a scalable solution.

Specifications

General

- **Dimension (W x H x D)** 176 x 120 x 44 mm (6.93" x 4.72" x 1.73")
- **Enclosure** ABS + PC
- **Power Input** 24 V_{DC}/24 V_{AC}
- **Power Consumption** 10 W @ 24 V_{DC}
- **Real-time Clock** Yes
- **Watchdog Timer** Yes
- **I/O Isolation Protection** 3,000 V_{DC}

Hardware

- **CPU** 32-bit CPU 312 MHz
- **Flash Memory** 32 MB
- **RAM** 64 MB SDRAM
- **Battery Backup SRAM** 512 KB

Communication

- **LAN** 1 x 10/100Base-T (RJ-45)
- **RS-485** 1 (isolated)
- **Communication Protocol** Modbus/TCP, Modbus/RTU

Universal Input (BAS-3520 only)

- **Channels** 4
- **Resolution** 16-bit
- **Sample Rate** 10 Hz (Total)
- **Accuracy** ±0.1% of FSR (Voltage, Current)
- **Type and Range**
 - Analog Input 0 ~ 10 V, 0 ~ 20 mA, 4 ~ 20 mA, Pt-100 RTD, Pt-1000 RTD, Thermistor (3 k, 10 k)
 - Digital Input (Dry Contact) Logic High: Close, Logic Low: Open
- **Over Voltage Protection** ±35 V
- **Span Drift** ±25 ppm/°C
- **Zero Drift** ±6 µV/°C

Analog Output (BAS-3520 only)

- **Channels** 4
- **Resolution** 12-bit
- **Accuracy** ±0.1% of FSR
- **Range** 0 ~ 10 V, 0 ~ 20 mA, 4 ~ 20 mA

Digital Input

- **Channels** 8
- **Dry Contact** Logic High: Close, Logic Low: Open
- **Supports 1 kHz Counter Input (2 channels)**
- **Supports 1 kHz Frequency Input (2 channels)**

Digital Output

- **Channels** 4 (Source Type)
- **Vcc: 10 ~ 35 V_{DC}, Current: 1 A (per channel)**
- **PWM output (2 channels)**
 - Minimum Period 1 second (for PWM output)
 - Minimum Pulse Width 0.1 second (for PWM output)

LCM Operation Unit (Optional)

- 2 line x 8 char, backlit LCD
- 5 button keypad
- Hot swap capable

Environment

- **Operating Temperature** -10 ~ 60° C (14 ~ 140° F) (with airflow)
- **Storage Temperature** -20 ~ 80° C (-4 ~ 176° F)
- **Operating Humidity** 20 ~ 95% (Non-condensing)
- **Storage Humidity** 0 ~ 95% (Non-condensing)

Ordering Information

- **BAS-3512-AE** 12-ch Web-enabled DDC Controller
- **BAS-3520-AE** 20-ch Web-enabled DDC Controller
- **BAS-3595-AE** LCM operation unit (Optional)

BAS-3500BC

Web-enabled BACnet DDC Controller

NEW



Features

- Standalone programmable controller
- Comprehensive management and system functions (alarm management, time scheduling, remote management, access protection etc.)
- Reliable and remote programming software (BASPro) provides BA domain function (scheduler, HVAC calculation, sequence...)
- Supports BACnet IP for uplink and BACnet MS/TP for remote I/O
- Auto-tuning PID control
- Calendar schedule control

Introduction

The BAS-3500BC is an Ethernet-based, standalone programmable controller specially designed for the BACnet standard building automation (BA) applications. As a native BACnet® Building Controller (B-ASC), BAS-3500BC integrates into any 3rd-party BACnet® system with low and predictable effort. It supports BACnet MS/TP, also features powerful BASPro programming tool for engineers to quickly develop their application. BASPro tool delivers many function blocks suitable for BA application, such as scheduler, HVAC, sequential control, PID control, alarm, and event. Its compact size makes it an ideal solution to fulfill BA installation environment. The I/O expansion modules (BAS-3018BC, BAS-3024BC, BAS-3050BC, BAS-3051BC) provide more I/O points and make the system a scalable solution.

Specifications

General

- **Certification** CE, FCC
- **Mounting** DIN-rail, wall mount
- **Dimensions (W x H x D)** 176 x 110 x 39.2mm (6.93" x 4.33" x 1.54")
- **Power Input** 24 V_{DC}/24 V_{AC}
- **Power Consumption** 3 W @ 24 V_{DC}
- **Real-time Clock** Yes
- **Watchdog Timer** Yes

Hardware

- **CPU** 32-bit CPU 312 MHz
- **Flash Memory** 32MB
- **RAM** 64M SDRAM
- **Battery Backup SRAM** 512KB

Communication

- **LAN** 1 x 10/100Base-T (RJ-45) BACnet/IP sever & client
- **COM1** RS-485 BACnet MS/TP
- **COM2** RS-485 BACnet MS/TP
- **COM3** RS-485 Modbus RTU Master
- **COM4** RS-485 A Bus Extension (Advantech product use)

Environment

- **Operating Temperature** -10 ~ 60°C (14 ~ 140°F)
- **Storage Temperature** -20 ~ 80°C (-4 ~ 176°F)
- **Operating Humidity** 20 ~ 95% (Non-condensing)
- **Storage Humidity** 0 ~ 95% (Non-condensing)

Ordering Information

- **BAS-3500BC-AE** Web-enabled BACnet DDC Controller

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DAQ Boards

BAS-3018BC

BAS-3024BC

8-ch UI BACnet MS/TP Remote I/O Module

4-ch UI, 4-ch AO, 4-ch DO BACnet MS/TP Remote I/O Module



Features

- 24 V_{DC} or 24 V_{AC} input
- 3000 V_{DC} isolation protection
- Universal input supports 0 ~ 10 V, 0 ~ 20 mA, 4 ~ 20 mA, RTD, Thermistor (3K, 10K), and digital input (Dry contact)
- Analog output supports 0 ~ 10 V, 0 ~ 20 mA, and 4 ~ 20 mA (BAS-3024BC only)
- Supports PWM output (BAS-3024BC only)
- BACnet MS/TP Server
- Supports Master and Slave mode

Introduction

BAS-3018BC/BAS-3024BC can serve as BACnet MS/TP remote I/O modules through an RS-485 network to be integrated with worldclass BACnet DDC Controller such as Johnson Controls, Honeywell etc.

Specifications

General

- **Dimensions (W x H x D)** 120 x 120 x 44 mm (4.72" x 4.72" x 1.73")
- **Enclosure** ABS + PC
- **Power Input** 24 V_{DC}/24 V_{AC}
- **Power Consumption** 3 W @ 24 V_{DC} (BAS-3018BC)/
4 W @ 24 V_{DC} (BAS-3024)
- **Watchdog Timer** Yes
- **Communication** RS-485

Universal Input

- **Channels** 8 (BAS-3018BC)/4 (BAS-3024BC)
- **Resolution** 16-bit
- **Sample Rate** 10 Hz (Total)
- **Accuracy** ±0.1% of FSR (Voltage, Current)
- **Type and Range** Analog Input: 0 ~ 10 V, 0 ~ 20 mA, 4 ~ 20 mA, Pt-100/1000, RTD, Thermistor (3 k, 10 k)
Digital Input Logic High: Close (Dry Contact) Logic Low: Open
- **Over Voltage Protection** ±35 V

Analog Output (BAS-3024 only)

- **Channels** 4
- **Resolution** 12-bit
- **Accuracy** ± 0.1% of FSR
- **Range** 0 ~ 10 V, 0 ~ 20 mA, 4 ~ 20 mA

Digital Output (BAS-3024 only)

- **Channels** 4 (Source Type)
- **V_{CC}** 10 ~ 35 V_{DC}, Current: 1 A (per channel)
- **PWM Output (2 channels)**
Minimum Period 1 second (for PWM output)
Minimum Pulse Width 0.1 second (for PWM output)

Protection

- **Isolation Voltage** 3,000 V_{DC}

BACnet Profile

- **Protocol** BACnet MS/TP Server
- **Mode** Master and Slave
- **Device Profile** BACnet Smart Sensor (B-SS)
- **Interoperability** DS-RP-B, DS-WP-B, DS-RPM-B, DS-WPM-B Building Blocks
- **Objects** AI, AO, BO and Device

Environment

- **Operating Temperature** -10 ~ 60°C (14 ~ 140°F)
- **Storage Temperature** -20 ~ 80°C (-4 ~ 176°F)
- **Operating Humidity** 20 ~ 95% (Non-condensing)
- **Storage Humidity** 0 ~ 95% (Non-condensing)

Ordering Information

- **BAS-3018BC-AE** 8-ch UI BACnet MS/TP Remote I/O Module
- **BAS-3024BC-AE** 4-ch UI, 4-ch AO, 4-ch DO BACnet MS/TP Remote I/O Module

BAS-3050BC BAS-3051BC

**8-ch DI, 8-ch DO BACnet MS/TP
Remote I/O Module**

**16-ch DI BACnet MS/TP Remote I/O
Module**



Features

- 24 V_{DC} or 24 V_{AC} input
- 3000 V_{DC} isolation protection
- Supports 1 kHz counter input and 1 kHz frequency input (2 channels)
- Supports PWM output (2 channels) (BAS-3050BC only)
- BACnet MS/TP Server
- Supports Master and Slave mode

Introduction

BAS-3050BC/BAS-3051BC can serve as BACnet MS/TP remote I/O modules through an RS-485 network to be integrated with worldclass BACnet DDC Controllers such as Johnson Controls, Honeywell etc.

Specifications

General

- **Dimensions (W x H x D)** 120 x 120 x 44 mm (4.72" x 4.72" x 1.73")
- **Enclosure** ABS + PC
- **Power Input** 24 V_{DC}/24 V_{AC}
- **Power Consumption** 3 W @ 24 V_{DC}
- **Watchdog Timer** Yes
- **Communication** RS-485

Digital Input

- **Channels** 8 (BAS-3050BC)/16 (BAS-3051BC)
- **Dry Contact**
 - Logic High: Close
 - Logic Low: Open
 - Support 1 kHz Counter Input (2 channels)
 - Support 1 kHz Frequency Input (2 channels)

Digital Output (BAS-3050BC only)

- **Channels** 8 (Source Type)
- **V_{CC}** 10 ~ 35 V_{DC}, Current: 1 A (per channel)
- **Supports PWM Output (2 channels)**
 - Minimum Period 1 second (for PWM output)
 - Minimum Pulse Width 0.1 second (for PWM output)

Protection

- **Isolation Voltage** 3,000 V_{DC}

BACnet Profile

- **Protocol** BACnet MS/TP Server
- **Mode** Master and Slave
- **Device Profile** BACnet Smart Sensor (B-SS)
- **Interoperability** DS-RP-B, DS-WP-B, DS-RPM-B, DS-WPM-B Building Blocks
- **Objects** BI, BO, and Device

Environment

- **Operating Temperature** -10 ~ 60°C (14 ~ 140°F)
- **Storage Temperature** -20 ~ 80°C (-4 ~ 17°F)
- **Operating Humidity** 20 ~ 95% (Non-condensing)
- **Storage Humidity** 0 ~ 95% (Non-condensing)

Ordering Information

- **BAS-3050BC-AE** 8-ch DI, 8-ch DO BACnet MS/TP Remote I/O Module
- **BAS-3051BC-AE** 16-ch DI BACnet MS/TP Remote I/O Module

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DAQ Boards

WebView-1212

12" Web-enabled touch IPC with
600 I/O tags



Features

- Intel® Celeron® M processor up to 1 GHz on board
- 12.1" SVGA LED backlight LCD
- Fanless cooling system
- NEMA4/IP65 compliant front panel
- Automatic data flow control RS-485
- Built-in Advantech WinCE WebAccess
- Supports 2 web clients
- Web-Server support for Remote control and monitor through IE browser
- Supports calendar, scheduler function

Introduction

The WebView-1212 is a web-based touch panel IPC bundle with SCADA software - WebAccess. With the Intel Celeron M 1 GHz processor has low power consumption and rich I/O portfolio meets diverse requests. WebAccess communicates with automation equipment used in manufacturing facilities, industrial plants and building automation systems. The software acquire, display, monitor and store real-time data and allows operators to change set-points, equipment status and other parameters in Programmable Logic Controllers (PLCs), Controllers, IO, RTUs, DCS and DDC systems.

Specifications

General

- **BIOS** Award® 4 MB
- **Certification** BSMI, CCC, CE, FCC, UL
- **Cooling System** Fanless design
- **Dimensions (W x H x D)** 311 x 237 x 52.3 mm (12.24" x 9.33" x 2.06")
- **Enclosure** Front bezel: Die-cast Aluminum alloy
Mounting Desktop, Wall or Panel Mount
- **OS Support** Windows CE
- **Power Consumption** 40 W (typical)
- **Power Input** 18 ~ 32 V_{DC}
- **Watchdog Timer** 1 ~ 255 sec (system)
- **Weight (Net)** 3.3kg (7.28lbs)

System Hardware

- **CPU** Intel® Celeron® M 1GHz non-cache
- **Chipset** Intel® 915GME + ICH6M
- **Memory** 1GB onboard DDR2 SDRAM
- **LAN** 10/100Base-T x 2
- **Expansion Slots** PCI-104 x 1
Storage 1 x CompactFlash® slot
2.5" SATA HDD x 1 wide temperature HDD (optional)
- **I/O** RS-232 x 3 (COM1, 2, 3)
RS-232/422/485 x 1 (COM4) with auto data flow control
USB 2.0 x 4 (Host)
VGA x 1
MIC-in x 1, Line-out x 1

LCD Display

- **Display Type** SVGA LED backlight LCD
- **Display Size** 12.1"
- **Max. Resolution** 800 x 600
- **Max. Colors** 262 K
- **Luminance cd/m²** 450
- **Viewing Angle (H/V°)** 160/140
- **Backlight Life** 50,000 hrs
- **Contrast Ratio** 700:1

Touchscreen

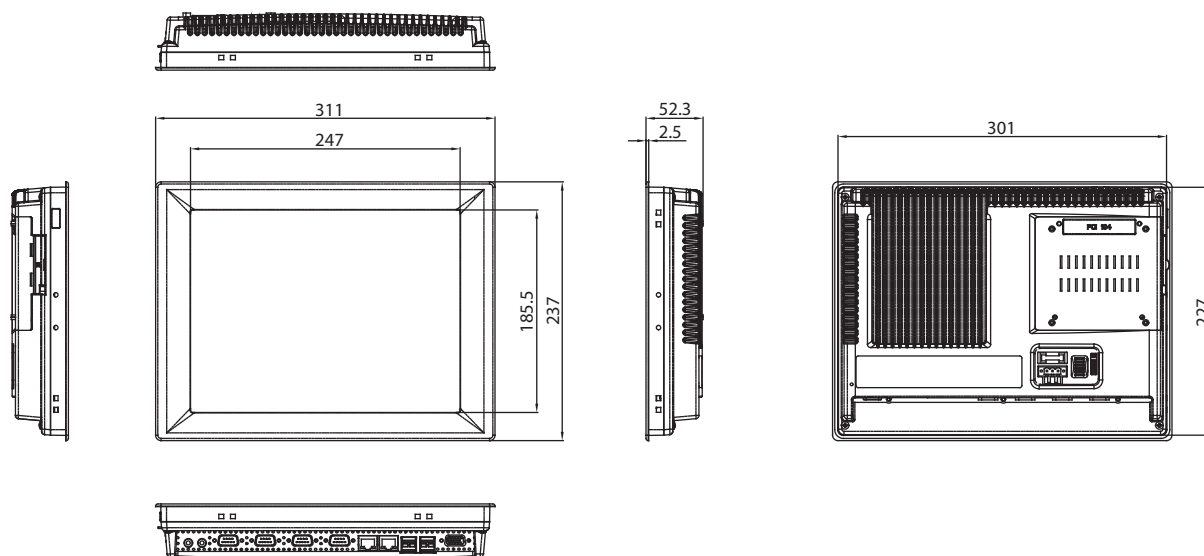
- **Lifespan** 1 million touches at single point
- **Light Transmission** Above 75%
- **Resolution** Linearity
- **Type** 5-wire, analog resistive

Environment

- **Humidity** 10 ~ 95% RH @ 40°C, non-condensing
- **Ingress Protection** Front panel: NEMA4, IP65
- **Operating Temperature** 0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Vibration Protection** With HDD: 1 Grms (5 ~ 500 Hz)
(Operating, random vibration)

Dimensions

Unit: mm

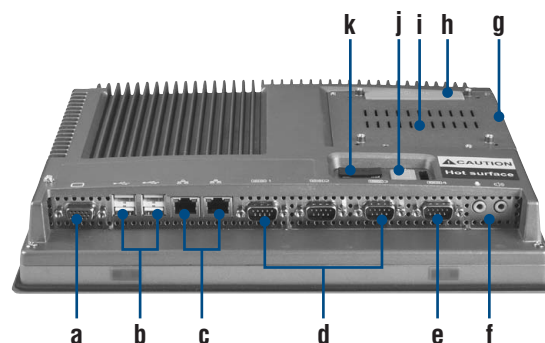


Panel Cut-out Dimensions: 302.5 x 228.5 mm

Software Specifications

- **Advantech WinCE WebAccess specifications**
- **Operating System** Windows CE 5.0
 - I/O Tag Number 600
 - Internal Tag Number 600
 - Web Client 2
 - Alarm Log 1,000
 - Action Log 1,000
- **Graphics**
 - No. of Variables per Graphic Page 255
 - Graph format BMP
- **Data Trend Log**
 - No. of data logging 50 Tags
- **Recipe**
 - Recipes per Project 100
- **Scheduler**
 - Holiday Configuration 10 groups
 - Time Zone Group 99
 - Device Loop Group 99
 - Class Scheduler Yes
- **BEMS Data Transfer**
 - Data Transfer to BEMS Data Server Yes

Rear View



- a. VGA
- b. USB 2.0
- c. LAN (10/100/1000)
- d. COM (RS-232)
- e. COM (RS-232/422/485)
- f. Audio (MIC, Line-Out)

- g. CompactFlash
- h. PCI-104
- i. 2.5" SATA HDD Housing
- j. Power Switch
- k. Fuse (3.15A), Power Receptor

Ordering Information

- **WVIEW1212-P21C-AE** 12" Web-enabled touch IPC with 600 I/O tags
- **TPC-1270H-SMKE** TPC-1270H Desktop Stand
- **TPC-1270H-WMKE** TPC-1270H Wallmount Kit
- **TPC-1270H-EPKE** TPC Series PC/PCI-104 Extension Kit
- **PWR-247-AE 24V** 50W AC-DC Power Adapter

- 1 Motion Control
- 2 Hazardous Location
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- 9 Industrial Ethernet
- 10 Device Servers & Gateways
- 11 Serial Communication Cards
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- 13 PACs
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- 16 RS-485 I/O
- 17 Ethernet I/O
- 18 DAQ Boards

BEMG-4110

Energy Data Concentrator
with 4 x COM, 1 x LAN

NEW



Features

- 2 x RS-232/485, 2 x RS-232/422/485 with automatic flow control
- 1 x 10/100Base-T RJ-45 port and 2 x USB 2.0 ports
- Fanless design with no internal cabling
- Built-in Windows® CE with Advantech WinCE WebAccess Energy Data Concentrator
- Supports various protocol drivers to communicate with different devices
- Multi-thread communication, fast response time
- Configured through web browser
- Easy to diagnose and maintain, which helps to reduce maintenance costs

Introduction

Advantech BEMG-4110 is a fanless Energy Data Concentrator featuring an AMD Geode LX800 500MHz and rich interfaces (such as serial, USB and LAN). Installed with Advantech WinCE WebAccess, BEMG-4110 is a browser-based Energy Data Concentrator, whose Web Server function increases flexibility and convenience, making it easy to configure and maintain the system via Internet. With built-in driver, BEMG-4110 can connect with a variety of automation equipment and devices, and get data from them.

Specifications

General

- **Certification** CE, FCC Class A, CCC
- **Dimensions (W x D x H)** 188.8 x 106.5 x 35.5 mm (7.5" x 4.2" x 1.4")
- **Enclosure** Aluminum
- **Mounting** Wallmount, DIN-rail
- **Industrial Grounding** Isolation between chassis and power ground
- **Power Consumption** 15 W (typical)
- **Power Requirements** 10 ~ 48 V_{DC} (e.g. +24 V @ 1 A) (Min. 24 W), AT
- **Weight** 0.8 kg
- **System Design** Fanless with no internal cabling
- **Remote Management** Built-in Advantech DiagAnywhere agent on Windows CE/XPe

System Hardware

- **CPU** AMD Geode LX800 500MHz
- **Memory** Onboard 256 MB DDR SDRAM
- **Indicators** LEDs for power, IDE, diagnosis (programmable) and LAN (Active, Status)
Buzzer for diagnosis (programmable)
- **Keyboard/Mouse** 1 x PS/2
- **Storage** SSD: 1 x internal type I/II CompactFlash® slot
HDD: expansion kit for 2.5" IDE HDD (Option)
- **Display** DB15 VGA connector, 1024 x 768 @ 60 Hz
- **Watchdog Timer** Programmable 256 levels timer interval, from 1 to 255 sec

I/O Interface

- **Serial Ports** 2 x RS-232/485, 2 x RS-232/422/485
- Automatic RS-485 data flow control
- RS-422/485 surge protection up to 2,000 V_{DC}
- **Serial Port Speed** RS-232: 50 ~ 230.4 kbps;
RS-422/485: 50 ~ 921.6 kbps (Max.)
- **USB Ports** 2 x USB ports, EHCI, Rev. 2.0 compliant
- **LAN** 1 x 10/100Base-T RJ-45 port

Software Specifications

- **Operating System** Windows CE 5.0
- Advantech WinCE WebAccess Energy Data Concentrator:**

- **I/O Tag Number** 600
- **Internal Tag Number** 600
- **Web Client** 2
- **Number of I/O Devices** 64 (max)

Environment

- **Humidity** 95 % @ 40°C (non-condensing)
- **Ingress Protection** IP40
- **Operating Temperature** (IEC 60068-2-2, 100% CPU/ I/O loading)
-10 ~ 55°C (14 ~ 131°F)
- **Shock Protection** IEC 68 2-27
CompactFlash®: 20 G @ DIN, half sine, 11 ms,
50 G @ Wall/Panel, half sine, 11 ms
- **Vibration Protection** IEC 68 2-6
CompactFlash®: 2 Grms @ sine, 5 ~ 500 Hz,
1 Oct./min, 1hr/axis.
HDD: 1 Grms @ sine, 12 ~ 300 Hz, 1 Oct./min,
1 hr/axis.

Ordering Information

- **BEMG-4110-AE** Energy Data Concentrator with 4 x COM, 1 x LAN

BEMG-4221/4222

Energy Data Concentrator
with 6 x USB, 4 x COM/
8 x COM, 128 Devices

NEW



BEMG-4221

BEMG-4222



Introduction

BEMG-4221 and BEMG-4222 are powerful data concentrators bundled with SCADA software - WebAccess. With Intel Atom N450/D510 1.67GHz CPUs, Gigabit Ethernet ports, rich I/O, and 2 x Mini PCIe socket. Both products have Energy Star certification, IP40 anti-dust ingress protection and wide operating temperatures (-10 ~ 70°C), providing high performance and high versatility with low power consumption.

WebAccess communicates with automation equipment used in manufacturing facilities, industrial plants and building automation systems. The software acquire, display, monitor and store real-time data and allows operators to change set-points, equipment status and other parameters in end-device.

Specifications

General

- Certification** Energy Star, CE, FCC Class A, UL, CCC, C-Tick Class A, BSMI
- Dimensions (W x D x H)** BEMG-4221: 255 x 152 x 50 mm (10" x 6.0" x 2.0")
BEMG-4222: 255 x 152 x 59 mm (10" x 6.0" x 2.3")
- Enclosure** Aluminum +SECC
- Mounting** DIN-rail, Wallmount, VESA
- Industrial Grounding** Isolation between chassis and power ground
- Power Consumption** BEMG-4221: 12W (Typical)
BEMG-4222: 16W (Typical)
- Power Requirements** 9 ~ 36 Vdc (e.g. +24 V @ 1.5 A) (Min. 36 W), ATX S3, S4
- Weight** 2.5 kg
- System Design** Fanless design with no internal cabling

System Hardware

- CPU** BEMG-4221: Intel® Atom™ D510 Dual Core 1.67GHz
BEMG-4222: Intel® Atom™ N450 1.67GHz
- Memory** 2 GB DDR2 SDRAM built-in
- Indicators** LEDs for Power, CF, LAN (Active, Status), Serial (Tx, Rx)
- Keyboard/Mouse** 1 x PS/2
- Storage** CF: 1 x front-accessible type I/II CompactFlash® slot
HDD: 1 x built-in 2.5" SATA HDD/SSD bracket
DB15 VGA connector
BEMG-4221 supports: 1400 x 1050
BEMG-4222 supports: up to 2048 x 1536
Programmable 256 levels timer interval, from 1 to 255 sec
- Display** 1 x Printer port (BEMG-4222)
- Watchdog Timer**
- Printer Port**

Features

- Onboard Intel® Atom™ N450/D510 1.67GHz processors
- 2 x 10/100/1000 Base-T RJ-45 port, 6 x USB 2.0 ports
- 2 x Mini PCIe slot with 1 x SIM slot support
- Isolation between chassis and power ground
- Supports wide operating temperatures from -10 ~ 70°C
- Supports 8 x COM ports (BEMG-4222)
- Built-in Windows® CE with WebAccess Energy Data Concentrator
- Configured through web browser
- Supports various protocol drivers to communicate with different devices
- Support data transfer to Advantech BEMS

I/O Interface

- Serial Ports** BEMG-4221: 2 x RS-232/485 (COM1-2),
2 x RS-232/422/485 w/ 128kB FIFO (COM A-B)
BEMG-4222: 2 x RS-232/485 (COM1-2),
2 x RS-232/422/485 w/ 128kB FIFO (COM A-B),
4 x RS-232/485 from DB25 print port (COM3-6)
- Serial Port Speed** 50-115.2 kbps (COM 1-6 in RS-232/485 mode)
50-115.2 kbps (COM A/B in RS-232 mode)
50-921.6 kbps (COM A/B in RS-422/485 mode)
- LAN** 2 x 10/100/1000 Base-T RJ-45 port
(Built-in boot ROM in flash BIOS)
- USB Ports** 6 x USB 2.0
- Audio** Line in, Line out, Mic in (5.1 channel HD audio)

Environment

- Humidity** 95% @ 40°C (non-condensing)
- Operating Temperature** IEC 60068-2-2 with 100% CPU/ I/O loading
-10 ~ 70°C (14 ~ 158°F)
- Ingress Protection** IP40
- Shock Protection** IEC 60068-2-27
CompactFlash®: 50 G @ wall mount, half sine, 11 ms
HDD: 20 G @ wall mount, half sine, 11 ms
IEC 60068-2-64 (Random 1 Oct./min, 1hr/axis.)
CompactFlash®: 2 Grms @ 5 ~ 500 Hz,
HDD: 1 Grms @ 5 ~ 500 Hz
- Vibration Protection**

Ordering Information

- BEMG-4221-P21C-AE** Energy Data Concentrator, Atom N450 1.67GHz, 2GB RAM
- BEMG-4222-P31C-AE** Energy Data Concentrator, Atom D510 1.67GHz, 2GB RAM

Accessories

- UNO-FPM21-AE** UNO-2000 series VESA mount kit
- 968EMW0021** Mini PCIe card for WLAN
- 1700001854** SMA/I-PEX cable 11CM
- 1750003222** 5dBi Dipole Antenna
- PCLS-DIAGAW10** Advantech Remote Monitoring & Diagnosis Utility

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PME-1130

3-phase KW & KWH Energy Meter

NEW



Features

- Small size with 100mm depth
- Panel cut 92 x 46 mm
- 1% Accuracy (Std. CT)
- Modbus RTU protocol over RS485

Introduction

The PME-1130 is a 3-phase KW/ KWH energy meter for sub-metering applications, ranging from power distribution, small motor control to lighting load circuit. It measures KW and kwh values. The measurement data can be viewed directly from local display, and also can be transmitted through a RS-485 using the Modbus protocol.

Specifications

Voltage & Current Measurement

- **Voltage** 80 ~ 350 V_{AC}, 45 ~ 65 Hz
- **Current** 5 mA ~ 5 A

Overload Protection (Std. 5A CT)

- **Permanent Voltage** 1.2 x V_{in}
- **Permanent Current** 2 x I_{in}
- **Transient Voltage** 2 x V_{in} (1 sec)
- **Transient Current** 20 x I_{in} (1 sec)

Power Measurement (Total, Std. 5A CT)

- **Resolution** 1W (per phase)
- **Accuracy** 1% Full Scale

Energy Measurement (Total, Std. 5A CT)

- **Display Resolution** 0.1 kWh (Range from 0 to 9,999,999.9kWh)
- **Record Resolution** 0.01 kWh (Range from 0 to 9,999,999.99kWh)
- **kWh Accuracy** 1% with PF 0.5 ~ 1.0

Front Panel Interface

- **Display** 6 digit 7 segment LED
- **Indicators** 5 LED, pulse LED for calibration
- **Mode** Display and Setting
- **Setting** 3 Function Key, ID address, Baud Rate, PT Ratio, CT Ratio, Phase/Wire.

Communication Interface

- **Bus** RS-485, Photo Isolated
- **Protocol** Modbus/RTU (format: 8/N/1)
- **Baud Rate** 1200/2400/4800/9600
- **Meter ID** 0 ~ 254

Reliability

- **Communication** IEC61000-4-4 1kV
- **Surge Test** IEC61000-4-5 4kV
- **EFT Test** IEC61000-4-4 1kV

AC Insulation

- **Aux. Power** 4.0 kV
- **Current Input** 4.0 kV

Power Supply

- **AC 110V** 93 ~ 126 V_{AC}
- **AC 220V** 187 ~ 253 V_{AC}

Physical

- **Operating Temperature** -10 ~ 70°C (32 ~ 158°F)
- **Operating Humidity** 0 ~ 90% RH (Non-condensing)
- **Storage Humidity** 0 ~ 95% (Non-condensing)
- **Weight** 425g (Std. 5A CT)
- **Panel Cut** 92 x 46 mm
- **Dimensions (W x H x D)** 110 x 50 x 115 mm

Ordering Information

- **PME-1130-AE** 3-phase KW & KWH Energy Meter

PME-1210

1-phase Multifunction Power Meter

NEW



Features

- Small size with 100mm depth
- Panel cut 92 x 46 mm
- Multi-function power measurement
- Modbus RTU protocol over RS-485

Introduction

The PME-1210 is a 1-phase multi-function power meter for sub-metering applications, ranging from power distribution, small motor control to lighting load circuit. It measures current & voltage, KW, kwh, kwh and PF values. The measurement data can be viewed directly from local display, and also can be transmitted through a RS-485 using the Modbus protocol.

Specifications

Voltage Measurement

- **Voltage** 80 ~ 350 V_{AC}
- **Resolution/Accuracy** 0.1V/0.5% full scale
- **Permanet overload** 450 V_{AC}
- **Transient Voltage** 2 x V_{in} (1sec)

Current Measurement (Std. 5A CT)

- **Range** 5 mA ~ 5 A
- **Resolution** 1 mA
- **Starting Current** 5 mA
- **Permanent Overload** 10 A
- **Transient current** 20 x I_{in} (1sec)
- **Accuracy** 0.5% full scale

Power Measurement

- **Resolution** 1W
- **Accuracy** 1% full scale

Energy Measurement

- **Display Resolution** 0.1 kWh (Range from 0 to 9,999,999.9kWh)
- **Record Resolution** 0.01 kWh (Range from 0 to 9,999,999.99kWh)
- **kWh Accuracy** 1% with PF 0.5 ~ 1.0

Frequency Measurement

- **Range** 45.0 to 65.0 Hz
- **Resolution/Accuracy** 0.1 Hz

PF Measurement

- **Range** 0.000 to 1.000
- **Resolution** 0.001 (polarized)
- **Accuracy** 1% (PF 0.5 ~ 1.0)

Front Panel Interface

- **Display** 6 digit 7 segment LED
- **Indicators** 8 LED
- **Mode** Display and Setting
- **Setting** 3 Function Key, ID address, Baud Rate, PT Ratio, CT Ratio

Communication Interface

- **Bus** RS-485, Photo Isolated
- **Protocol** Modbus/RTU (format: 8/N/1)
- **Baud Rate** 1200/2400/4800/9600
- **Meter ID** 0 ~ 254

Reliability

- **Communication** IEC61000-4-4 1 kV
- **Surge Test** IEC61000-4-5 4 kV
- **EFT Test** IEC61000-4-4 1 kV

AC Insulation

- **Aux. Power** 4.0 kv
- **Current Input** 4.0 kv

Power Supply

- **AC 110V** 93 ~ 126 V_{AC}
- **AC 220V** 187 ~ 253 V_{AC}

Physical

- **Operating Temperature** -10 ~ 70°C (32 ~ 158°F)
- **Operating Humidity** 0 ~ 90% RH non-condensing
- **Storage Humidity** 0 ~ 95% (Non-condensing)
- **Weight** 425g (Std. 5A CT)
- **Panel Cut** 92 x 46 mm
- **Dimensions (W x H x D)** 110 x 50 x 115 mm

Ordering Information

- **PME-1210-AE** 1-phase Multifunction Power Meter

1

Motion Control

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Hazardous Location

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Energy Automation

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DAQ Boards

PME-1230

3-phase Multifunction Power Meter

NEW



Features

- Small size with 100mm depth
- Panel cut 92 x 46 mm
- Multi-function power measurement
- Modbus RTU protocol over RS485

Introduction

The PME-1230 is a 3-phase multi-function power meter for sub-metering applications, ranging from power distribution, small motor control to lighting load circuit. It measures individual current & voltage, KW, kwh, kvarh, PF and kVAR values. The measurement data can be viewed directly from local display, and also can be transmitted through a RS-485 using the Modbus protocol.

Specifications

Voltage Measurement

- **Phase/Wire** 1P3W or 3P3W-2CT or 3P3W-3CT or 3P4W
- **Phase Voltage (3P4W) or Line Voltage (3P3W)** 80 to 350 V_{AC}
- **Resolution/Accuracy** 0.1 V/0.5% full scale
- **Permanent Overload** 450 V_{AC}
- **Transient Voltage** 2 x V_{in} (1sec)

Current Measurement (Std. 5A CT)

- **Range** 5 mA ~ 5 A
- **Resolution** 1 mA
- **Starting Current** 5 mA
- **Permanent Overload** 10 A
- **Transient current** 20 x I_{in} (1sec)
- **Accuracy** 0.5% full scale

Power Measurement (total)

- **Resolution** 1W (per phase)
- **Accuracy** 1% full scale

Energy Measurement (total)

- **Display Resolution** 0.1 kWh (Range from 0 to 9,999,999.9kWh)
- **Record Resolution** 0.01 kWh (Range from 0 to 9,999,999.99kWh)
- **kWh Accuracy** 1% with PF 0.5 ~ 1.0

Frequency Measurement

- **Range** 45.0 to 65.0 Hz
- **Resolution/Accuracy** 0.1 Hz

PF Measurement

- **Range** 0.000 to 1.000
- **Resolution** 0.001 (polarized)
- **Accuracy** 1% (PF 0.5 ~ 1.0)

Front Panel Interface

- **Display** 6 digit 7 segment LED
- **Indicators** 8 LED
- **Mode** Display and Setting
- **Setting** 3 Function Key, ID address, Baud Rate, PT Ratio, CT Ratio, Phase/Wire.

Communication Interface

- **Bus** RS-485, Photo Isolated
- **Protocol** Modbus/RTU (format: 8/N/1)
- **Baud Rate** 1200/2400/4800/9600
- **Meter ID** 0 ~ 254

Reliability

- **Communication** IEC61000-4-4 1kV
- **Surge Test** IEC61000-4-5 4kV
- **EFT Test** IEC61000-4-4 1kV

AC Insulation

- **Aux. Power** 4.0kV
- **Current Input** 4.0kV

Power Supply

- **AC 110V** 93 ~ 126 V_{AC}
- **AC 220V** 187 ~ 253 V_{AC}

Physical

- **Operating Temperature** -10 ~ 70°C
- **Operating Humidity** 0 ~ 90% RH (Non-condensing)
- **Storage Humidity** 0 ~ 95% (Non-condensing)
- **Weight** 425g (Std. 5A CT)
- **Panel Cut** 92 x 46 mm
- **Dimensions (W x H x D)** 110 x 50 x 115 mm

Ordering Information

- **PME-1230-AE** 3-phase Multifunction Power Meter