

PROGRAMMABLE ENHANCED UNITARY CONTROLLER

PEC8044-PB1-SO

As a programmable unitary controller, PEC8044 is a BACnet advanced application controller that receives the BTL(B-AAC) certification and supports the BACnet IP communication protocol and Modbus TCP industrial open protocol. PEC8044 hosts automation features such as schedule, alarm.



The PEC8044-PB1-SO controller can be extended to 8 modules. A single controller can manage 144 input and output points, fully meeting the requirements of distributed control and networked integration system applications. The efficient design of system hardware resource utilization ensures long-term investment returns for users.

The cycle time of the controller can be adjusted based on requirements, with optional 100-millisecond and 1-second cycles. This allows the controller to adapt to various scenarios with flexible response time, providing appropriate solutions for both fast response systems and applications with low real-time requirements, ensuring efficient and stable system operation.

The controller is designed in a rail mounted manner, which enables the product to be easily installed on a standard DIN rail, providing unified flexibility and convenience. It is suitable for scenarios that require high modularity and maintainability.

The compatibility of PEC8044-PB1-SO controller and PUC/PEC controller enables existing customers to seamlessly upgrade and expand their systems, ensuring long-term system reliability and protecting investments.

The family-based design of PEC8044-PB1-SO controller with 16 UI (universal input) and 16 DO (digital output) 10 modules aims to improve the design and configuration efficiency of basement ventilation, water supply and drainage, floor fresh air units, circuit lighting, multi-parameter sensors, and energy metering. It effectively meets the complex requirements of intelligent building applications, achieving refined management, improving energy efficiency, and saving costs.

FEATURES

- BACnet IP controller supporting Ethernet communication, with BTL (B-AAC) certification
- Modbus TCP and Modbus RTU controller supporting Ethernet and RS485 communication
- Has management functions such as schedule and alarm, can operate independently
- Fully programmable to meet different HVAC applications
- Provides faster response; the cycle time of the controller adjustable according to requirements, with optional 100-millisecond and 1-second cycles
- Dual-Ethernet port, supporting both star and daisy chain connections, as well as ring connection (RSTP switch required)
- This product supports dynamic or static IP address
- A graphical programming tool that supports offline simulation function. The controller has on board input and output points and supports connecting 10 modules through the EM bus
- Color-coded removable terminal blocks enable convenient and fault free termination
- Enhanced network security, compliant with advanced security encryption standards
- Embedded programmable tool with user friendly interface, compatibly use the programs edited by the existing Alaya tools
- Consistent appearance design, light weight and easy to operate, which continues Honeywell's style on the unitary controller
- CE, BTL, UL and RoHS certifications

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TECHNICAL SPECIFICATION

Part No.	UI	DI	AO	DO	Description
PEC8044-PB1-SO	8	0	4	4	PUC5533-EM2; PUC6002-EM2; PUC16000-EM2; PUC00016-EM2; Third-party Modbus RTU.A combination of up to 8 modules
Parameter					
CPU	HDSC 32-bit processor 240MHz. 16MB flash memory				
Electrical					
Rated voltage	24 VAC; 50/60Hz				
Power consumption	5 VA max. (controller only) 15 VA max. (including controller and all inputs/outputs and communications)				
Operating environment					
Storage temperature	-40°C to 65.5°C				
Operating temperature	0°C to 50°C				
Relative humidity	5% to 95% non-condensing				
Protection rating	IP20				
Size (H/W/D)					
PEC8044-PB1-S0	220×115×57.5mm				
Technical Specification of PEC8044-PB1-SO as Modbus Master Device					
Specifications of supported Modbus	Physical layer: RS-485 Protocol type: Modbus RTU Baud rate: 4800/9600/19200/38400 bps Parity bit: None/Odd/Even Stop bit: 1/2 Maximum number of connections: 8 Physical layer: Ethernet Protocol type: Mod bus TCP Maximum number of connections: 4				
Supported Modbus Function codes	Read coil: 01 Read discrete input: 02 Read holding register: 03 Read input register: 04 Write a single coil: 05 Write a single holding register: 06 Write multiple holding registers: 16				
Types of supported register for reading and writing	32bit Float (3210, 1032) Long integer (3210, 1032) Integer Boolean				
Technical Specification of PEC8044-PB1-SO as Mod bus Slave Device I					
Specifications of supported Modbus	Physical layer: RS-485 Protocol type: Modbus RTU Baud rate: 4800/9600/19200/38400 bps Parity check: None/Odd/Even Stop bit: 1/2 Maximum number of connections: 1 Physical layer: Ethernet Protocol type: Mod bus TCP Maximum number of connections: 1				
Function codes of supported Modbus	Read coil: 01 Read holding register: 03 Write a single coil: 05 Write a single holding register: 06 Write multiple holding registers: 16				
Certifications					
Certifications	BTL (B-AAC) CE UL RoHS				
Real-time Clock					
Operating range	24 hours, 365 days, permanent calendar				
Power Failure Backup	72 hours at 0° C to 50 ° C				

TECHNICAL SPECIFICATION

Input and Output	
Digital Output (DO)	Output type: Dry contact relay output - Dry contact relay output - Rated voltage: 24VAC, 50/60Hz - Rated current: 0mA~1A(AC), uninterrupted
Analog Output (AO)	Output types: Analog current, analog voltage, and digital output, customizable - Analog current output: - Current output range: 4~20 mA - Load resistance: maximum 550 Ohms - Analog voltage output: - Voltage output range: 0~10 VDC - Maximum output current: 10 mA - Load resistance: minimum 600 Ohms
Communication Interface	
Ethernet	Two RJ45 ports, 10/100 Mbps self-adaptive, supports star and daisy chain connections, as well as ring redundant connections (which requires a RSTp-based switch). It is recommended to use CAT 5e cable.
Sylk	One Sylk port; 18~22AWG shielded, twisted pair cable is recommended.
RS485 bus	One RS485 port, supports up to 8 expansion devices; 18~22AWG shielded, twisted pair cable is recommended.

Please refer to Table 2 for detailed information on Universal input (UI)

Table 2 Universal Input Details

Input type	传感器	运行范围
Room/Zone Discharge Air Outdoor Air Temperature	20K Ohm NTC	-40° C to 93° C
Resistance input	Generic	100 Ohms to 100K Ohms
Voltage input	Transmitter Controller	0 to 10 VDC
Current input	Transmitter Controller	0 to 20 mA An external 500-Ohm resistor is required
Digital input	Dry Contact closure	Open circuit $\geq$ 12K Ohms Closed circuit $\leq$ 500 Ohms

Table 3 STA LED Status Description

STA LED status	Communication status description
Lights off	No power; damaged LED; insufficient power supply, initial power-on; or boot loader damaged.
Solid on (green)	Startup power insufficient.
Blinking mode 1-continuously blinks on for 1 sec and off for 1 sec	Operating normally.
Blinking mode 2-continuously blinks on for 0.5 sec and off for 0.5 sec	Equipment alarms active; downloading configuration; loss of configuration.
Blinking mode 3-continuously blinks on for 0.25 sec and off for 0.25 sec	Controller's firmware is faulted.

*LED red blinking: hardware damage

**Table 4 485 LED Status Description
RS485 Communication Status**

485 LED status	Communication status description
Solid off	No extension module configured or the configuration file damaged.
Solid off, blink once every 2.5 sec	Controller is operating normally without communication with RS485.
Solid off, blink twice every 2.5 sec	Controller is operating normally with communication with RS485
Solid off, blink three times every 2.5 sec	Controller is operating normally with data transmission with RS485.

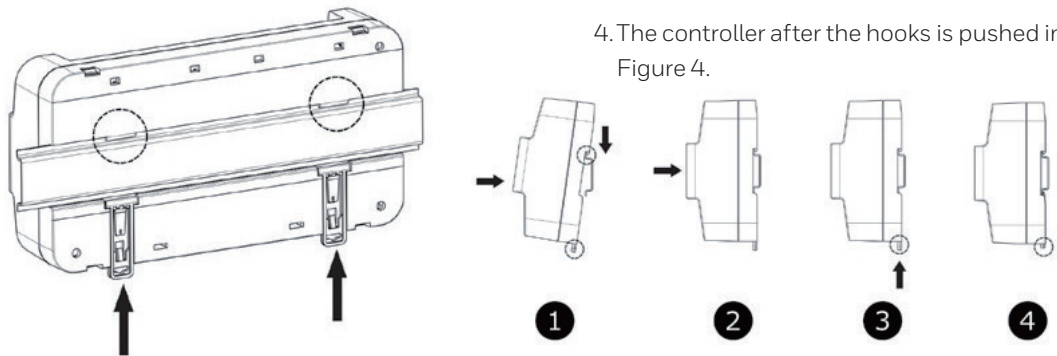
**Table 5.ETH LED Status Description
Ethernet Communication Status**

ETH LED status	Communication status description
Solid on (green)	System crashed, faulted.
off	No power supply, equipment fault, crashed.
Solid off, blink once every 2.5 sec	Controller is operating normally without IP acquired.
Solid off, blink twice every 2.5 sec	Controller is operating normally with network communication.
Solid off, blink three times every 2.5 sec	Controller is operating normally with data transmission.

PRODUCT INSTALLATION

Installation Notes:

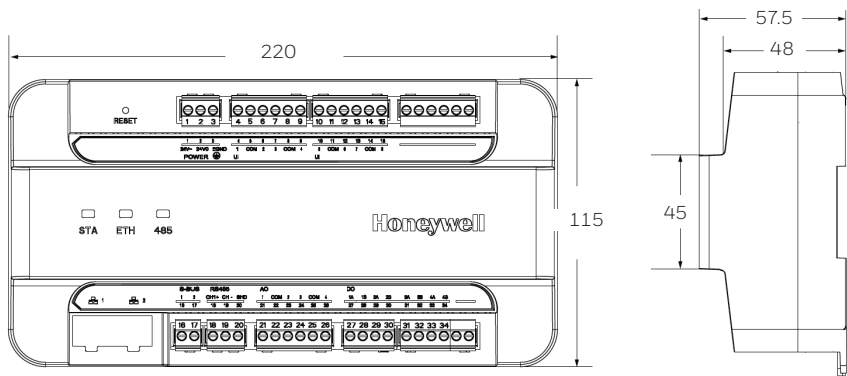
- Removable terminals make it easier for installation and maintenance.
- Controller must be installed in adequate space for wiring maintenance and removal.
- Product supports DIN rail. DIN rail specification: EN50022 7.5 mm x 35 mm.



Instructions:

1. Pull out the two rail hooks at the bottom of the controller holding the controller with its top tilted in towards the DIN rail, hook the two top tabs on the back of the controller onto the top of the DIN rail.
2. Push the bottom of the controller and make sure the controller tightly attached on the DIN rail.
3. Push in both hooks at the base to fasten the controller.
4. The controller after the hooks is pushed in is as shown in Figure 4.

PRODUCT DIMENSIONS (UNIT: mm)



ORDERING INFORMATION

Part No.	Product Description
PEC8044-PB1-SO	Honeywell's PEC8044-PB1-SO programmable enhanced unitary controller integrates BACnet IP intelligent building open protocol and Modbus Tcp industrial open protocol, with dual Ethernet interfaces and superior network integration capability; has input and output points of 8 UI, 4 AO and 4 DO: can be extended to up to 8 input and output modules and 128 input and output points to fully meet the requirements of distributed control and networked integration projects; has a polling cycle of the program adjustable based on requirements, with optional 100-millisecond and 1-second cycles to ensure efficient and stable operation of the control system.

For more information

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