Field Control Layer Device

Modbus to BACnet Protocol Interface

PC-Mxxx

【Description】

PC-Mxxx is a protocol conversion controller that complies with the BACnet B-AAC level dedicated programmable and independent operation.

It uses a 32-bit microprocessor, which can convert the commonly used MODBUS data to the BACnet data.

PC-Mxxx is often used to integrate equipment manufactured by different manufacturers in buildings. For example, constant temperature and humidity air-conditioning unit, network-based fan coil unit, chiller unit, lighting control system, multi-function electric meter system, fire protection Alarm system, elevator control system and other facilities.

PC-Mxxx has two types: 1. Converter data for a control. 2. Converter data not for a control (PC-Mxxx-N). When the integration requirements are irrelevant control or data feedback applications that can allow a longer time, such as electricity meters and water meters data collection, you can choose the pure data converter model PC-Mxxx-N , To provide you with a more cost-effective choice.

【Feature】

- It follows the BACnet B-AAC communication protocol established by the American Society of Heating, Refrigerating and Air Conditioning (ASHRAE) and is compatible with the BACnet system.
- Peer to Peer read/write function for reading (DS-RP-A/DS-RPM-A) and writing (DS-WP-A) BACnet object attributes.
- Built-in 10/100M Ethernet interfaces*3, BACnet Ethernet or BACnet/IP communication layer can be selected, and Modbus protocol can be selected as MODBUS/TCP Server, which can automatically map the internal BACnet data (AV/BV) to the default MODBUS data address (Register/Coil) for other MODBUS/TCP Client devices to read the information.
- Built-in MODBUS RTU RS-485 serial communication interface with indicator light and 2,500Vrms anti-interference potential isolation design, can be configured as MODBUS RTU Master to connect to all kinds of MODBUS RTU Slave devices; can also be configured as MODBUS RTU Slave for other MODBUS RTU Master devices to read.
- USB Type-C interface, connected to a PC, allows you to configure the controller's internal network parameters using terminal software.
- With online programme editing, debugging, online programme download and update function. It also supports reading and writing external device points.
- With enthalpy, dew point temperature, PID control and other common HVAC functions, and logarithmic, trigonometric functions, open root sign and other advanced mathematical functions.
- 100/200/500/1000 analogue (AV) or digital (BV) software points for communication conversion and programming. Communication conversion settings and programme editing can be done online using AIRTEK BACsoft graphical control software.
- Standard BACnet timetable/alarm notification function enables communication data to be converted and directly calculated for output, reducing the amount of communication and increasing the response time of the system.
- The analogue point data can be read and written in floating point, double precision floating point, long integer, BCD code and other non-standard forms, which can be applied to most of the different types of equipment. Conversion commands can be merged automatically according to the buffer size to save communication time.
- Each analogue read/write command supports a single addition/subtraction/multiplication/division operation for numerical offset or multiplication adjustment without additional processing at the BACnet application level. Conditional writing or writing when the value changes can be selected to save communication time and more flexible application.
- With power failure memory function, parameters can be stored in FRAM automatically during power failure.

【Specification】

Model	Exchange Data Point	Modbus			BACnet			Function		
		TCP Client	TCP Server	RS-485	IP	Ethernet	MS/TP	Schedule	Alarm	DDC Program
PC-ME10-XS	100	V	V		V	V		10	20	32Kb
PC-ME11-XS			V	V	V	V				
PC-MP11-XS				V			V			
PC-ME10-XS-N		V	V		V	V		X	X	X
PC-ME11-XS-N			V	V	V	V				
PC-MP11-XS-N				V			V			
PC-ME10-S	200	V	V		V	V		20	40	32Kb
PC-ME11-S			V	V	V	V				
PC-MP11-S				V			V			
PC-ME10-S-N		V	V		V	V		X	X	X
PC-ME11-S-N			V	V	V	V				
PC-MP11-S-N				V			V			
PC-ME10-M	500	V	V		V	V		50	100	32Kb
PC-ME11-M			V	V	V	V				
PC-MP11-M				V			V			
PC-ME10-M-N		V	V		V	V		X	X	X
PC-ME11-M-N			V	V	V	V				
PC-MP11-M-N				V			V			
PC-ME10-L	1000	V	V		V	V		50	100	32Kb
PC-ME11-L			V	V	V	V				
PC-ME10-L-N		V	V		V	V		X	X	X
PC-ME11-L-N			V	V	V	V				

Power Supply： 24VAC, 3VA(Half Wave Rectification)。

Microprocessor： 32-bit high performance MCU, 128K RAM, 32K FRAM and 1024K Flash memory.

Config Interface： USB Type-C interface, connected to a PC, allows you to set the controller's internal network parameters using terminal software.

Ethernet Port： 10/100M Ethernet interface * 3, can be either BACnet Ethernet or BACnet IP communication protocol.
(Only PC-ME10 and PC-ME11 have the Ethernet port. PC-MP11 has no Ethernet port).

TDnet Port： MODBUS RTU RS-485 port is selectable to be Master or Slave. Master can connect 32 slave devices.
Communication speed can be 1200/2400/4800/9600/19200/38400/76800 BPS.
(Only PC-ME11 and PC-MP11 have TDnet port. The PC-ME10 has no TDnet Port).

Protocol Convert： MODBUS RTU data (Register/Coil) and BACnet data (AV/BV), can convert 100~1000 data points.

Real Time Clock： Gold capacitor keeps its clock when power failure.

Environment： 0～50℃, 5～95%RH without condensation.

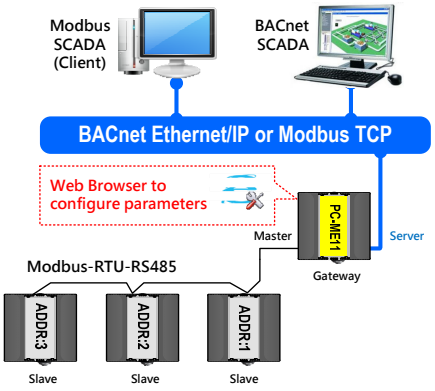
Certification： FCC and CE certified and RoHS compliant.

【Installation】

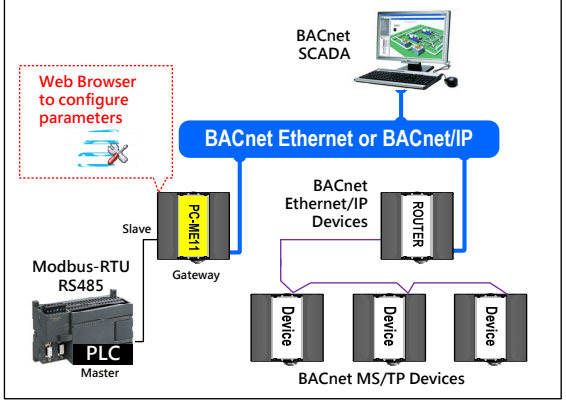
- The power supply cannot be shared with other full-wave rectifier controllers or converters to avoid the controller from being burned out by the short cycle of the power circuit.
- Allow other TCP Client devices to read and write data, the TCP/IP Port number is preset to 502 and can be adjusted
- RS-485 MODBUS RTU communication port
- The actual number of MODBUS RTU communications that can be connected is determined by the characteristics of the connected components, the amount of data and the data format. Generally, the RS-485 network can only connect up to 32 standard components. If the number exceeds this number, a Repeater must be installed.
- The totoal number of slave devices connected to the MODBUS RS-485 communication port is determined by component characteristics, data volume and data format. User must be avoid overload of its communication.
- MODBUS RS-485 network terminal is recommended to install 120Ω terminal resistance to ensure the signal quality. The integrated device must have MODBUS RS-485 communication capability, and the communication protocol must be the standard MODBUS RTU protocol Slave format.

【Application】

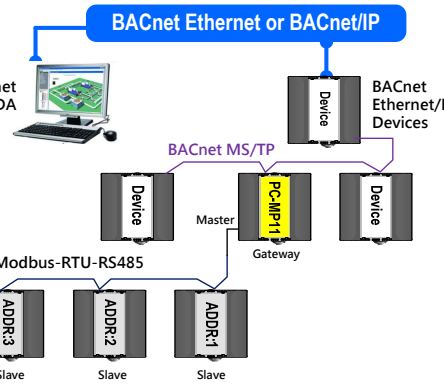
Different SCADA to Read modbus devices



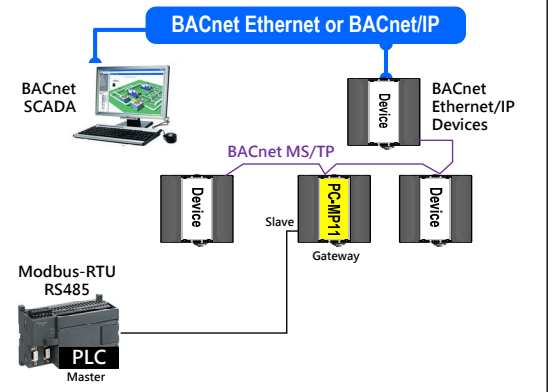
Let others Modbus PLC to Read/Write BACnet device data



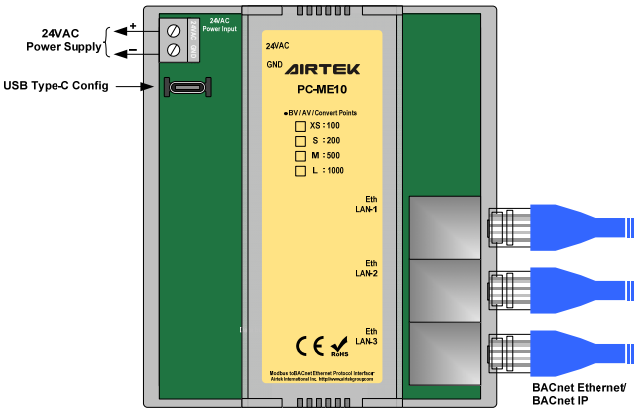
Integrate modbus devices into bacnet MSTP device

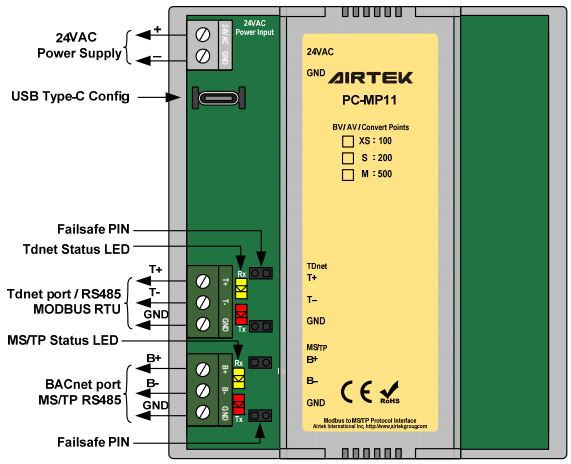


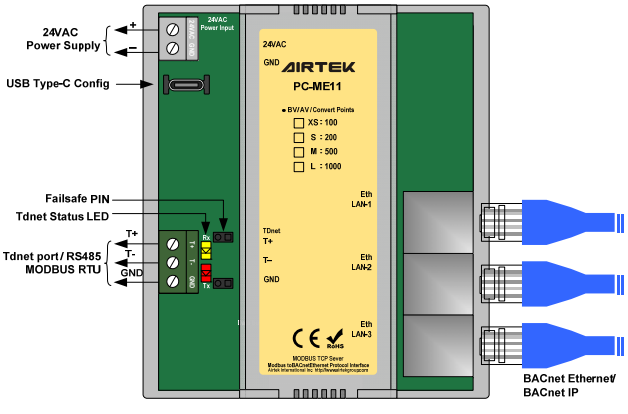
Let others Modbus PLC to Read/Write BACnet device data



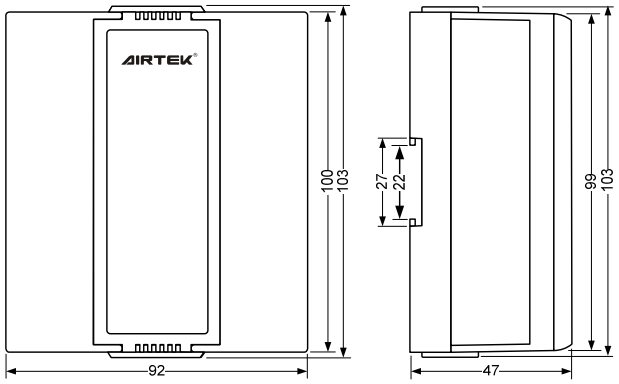
【Wiring】







【Dimension】Unit：mm



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