



PROTOCOL CONVERTER

Situation

Integration of Variable Refrigerant Flow (VRF) air conditioning systems with BACnet based Building Management System (BMS) to provide central control of the air conditioning system. A VRF system communicating on modbus protocol would require a protocol converter for speedy integration with the BACnet based BMS.

Expected Feature Set

- Protocol conversion from BACnet on IP to Modbus RTU.
- A configurable system that would accept parameters like, number of VRF units connected, device id to be published on the BACnet network and IP Address.
- The VRF parameters to be controlled and monitored by the system are, VRF unit status, temperature, run mode (cool, dry, heat, fan) and fan speed (low, medium, high, auto) and one parameter just to be monitored is room temperature.



Solution

Aftek's Protocol Converter APC-BM-200 is developed to create a bridge between Modbus protocol based VRF AC systems and BACnet based BMS. Since BACnet protocol is being widely used in BMS around the world, APC-BM-200 will be a good solution for quick integration of those systems that do not work on BACnet.

VRF AC systems

The air conditioning system is controlled by electronic devices called as Indoor Units (IDU) and Outdoor Units (ODU). A cluster of IDUs is controlled by an ODU and maximum of 64 IDUs can be connected to an ODU.

APC-BM-200 a bridge between BMS and VRF AC systems

APC-BM-200 monitors parameters of IDUs and ODUs on RS-485 bus, any changes in values of those parameters are informed to BMS on BACnet protocol.

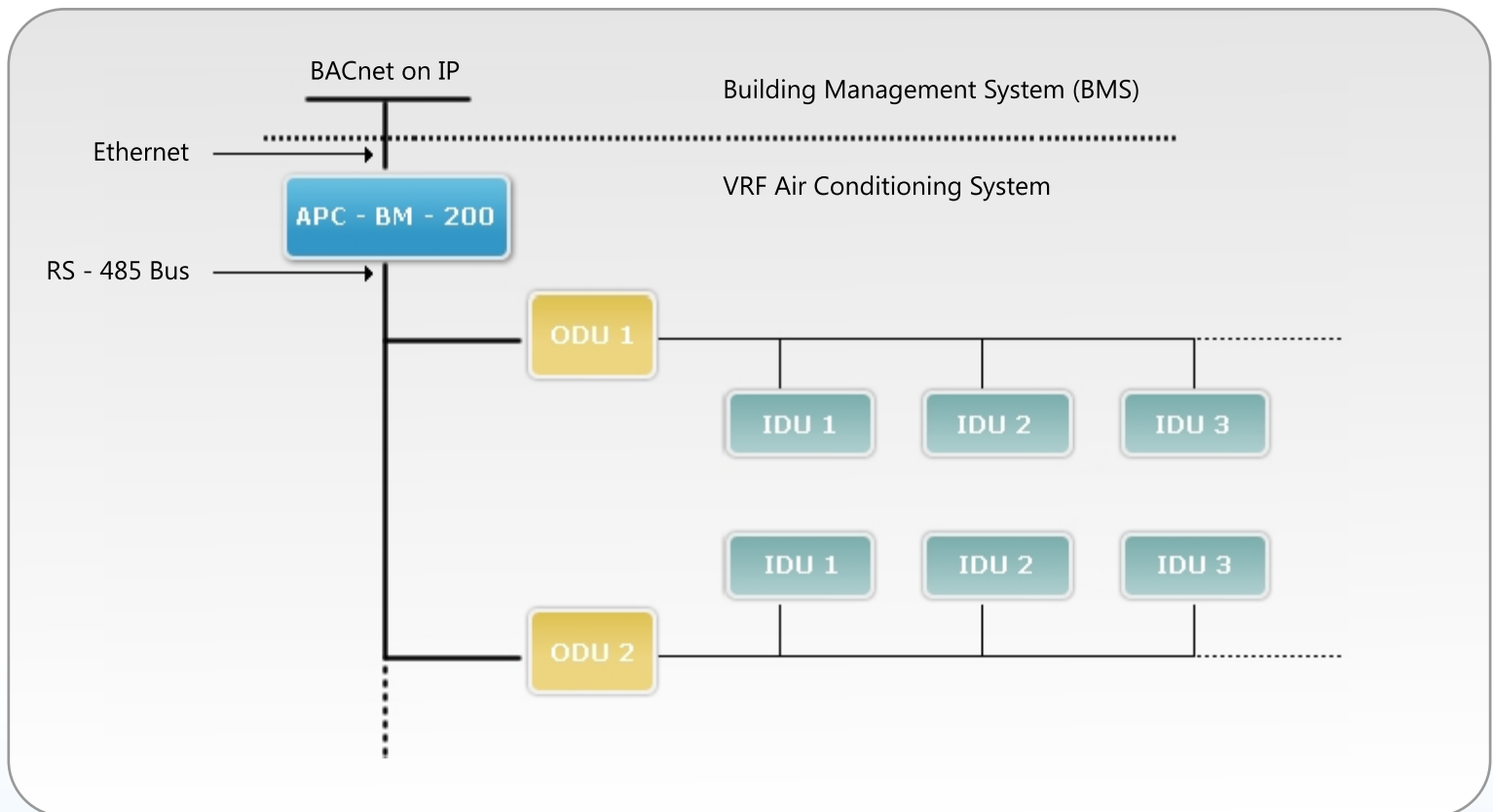
APC-BM-200 also converts all BACnet based request sent by BMS according to Modbus protocol before forwarding it to ODUs.



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Architectural Overview

APC-BM-200 has one Ethernet port to communicate with the BACnet based BMS and one RS-485 port to communicate with ODUs. Parameters required by APC-BM-200 can be configured using configuration utility provided along with the protocol converter.



Benefits to the Client

- **Provides faster integration with the BACnet based BMS saving significant time and money.**
- **Complete configurable system for easy installation.**
- **APC series solution can be modified to support proprietary protocols.**