Kara Systems

Kara BACnet Gateway V2.2

for M-Bus, Modbus and 1-Wire devices

The Kara BACnet Gateway integrates M-Bus(EN-1434-3) Modbus and 1-Wire devices to a BACnet Infrastructure Network. It is a three in one gateway and you can connect all three different buses at same time. The Gateway has a small robust case and can be directly plunged into the power plug. It has no movable parts, needs no maintenance and consume less than 5 Watts. The intuitive configuration is done over the integrated web server.

M-Bus

The M-Bus gateway detects all kinds of meters such as electric, gas, heat, water and others. It supports M-Bus meters types, Mode1, Mode 2, “Fixed Data Response” and “Variable Data Response” types. Every single M-Bus meter record can be explicit configured to be converted to a BACnet Analog Object. It converts the meters readings, media and units to BACnet Analog Inputs properties respectively. Meter hourly readings are stored for 7 days in memory and daily readings are stored on flash memory. Meter readings and consumption can be display on an web interface or exported to Excel. BACnet clients connected to the BACnet/IP or BACnet/Ethernet network can read the M-Bus readings by polling or by making a subscription request (COV).

Modbus

Modbus devices are converted to BACnet Binary and Analog Objects respectively. The Gateway support Modbus over EIA-232, EIA-485(optionally) and over TCP/IP. The gateway polls the modbus objects at a configurable rate. Values can be read or written by BACnet clients and by the Web Interface using the browser. BACnet clients can requests COV.

1-Wire

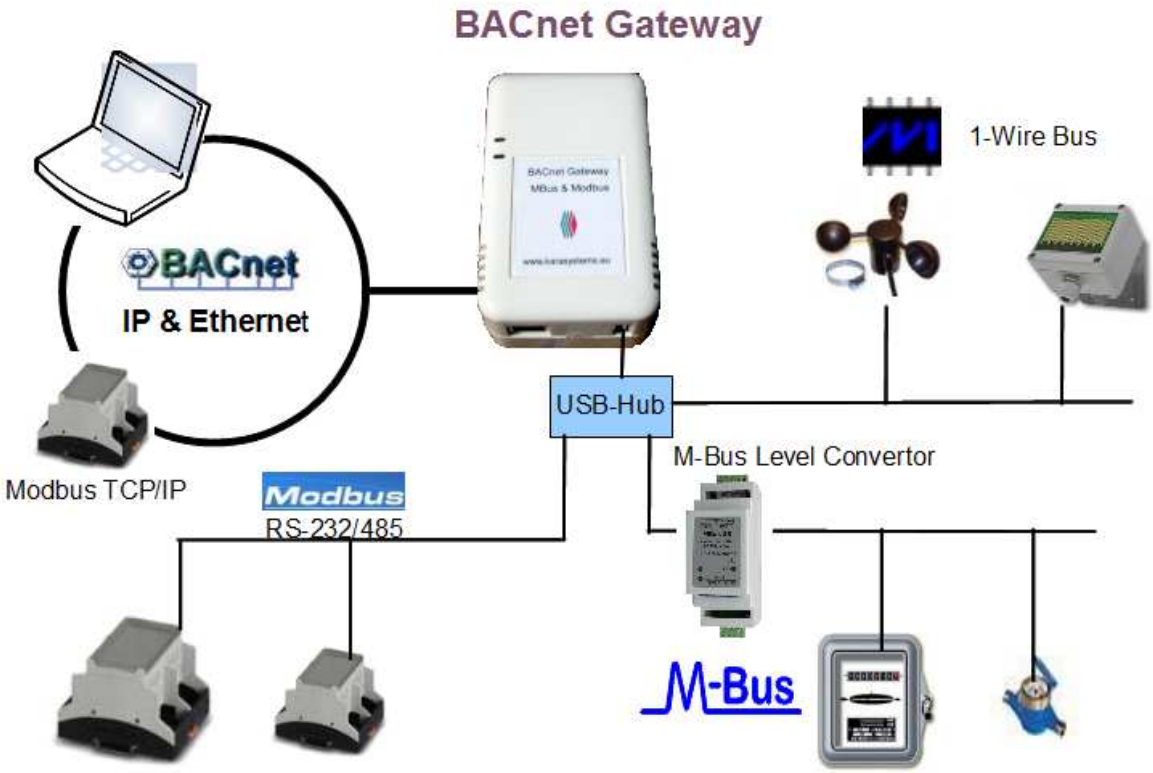
1-Wire is a device communications bus system designed by Dallas Semiconductor Corp. that provides low-speed data, signaling, and power over a single signal. 1-Wire is similar in concept to I^2C, but with lower data rates and longer range. It is used to communicate with small inexpensive devices such as

digital thermometers, humidity Sensors, Channel I/O etc. You can connect the 1-Wire bus either using direct the USB Interface DS2490 or the serial DS2480B Interface.

BACnet

The Kara BACnet Gateway simulates a BACnet server device over BACnet/IP or BACnet/Ethernet. It Supports Analog, Binary and Notification Objects. BACnet Broadcast Management Device support included. Proprietary BACnet properties are defined to include M-Bus and Modbus special properties. See BACnet Characteristics.

Gateway Scenario:



Hardware Characteristic

- Support for RS-232, optional RS-485
- BACnet/IP and BACnet/Ethernet 10/100Mbps Ethernet port
- Extremely compact design, 68 x 108x 48mm
- Ultra low consumption, less than 5 Watts with integrated power supply
- No moving parts
- WLAN optionally, by simple plugging an USB Wi-Fi dongle.
- Regulations: CE Class A, FCC Class A, UL
- Operation Temperature: 0 to 70C(32 to 158F)

M-Bus Characteristic:

- Support for all kind of Meters types, Mode 1, Mode 2 and fixed and variable data types.
- 253 meters on RS232 interface
- Primary addressing up to 250 Meters
- Secondary addressing meter scanning
- Baudrates 300, 600, 1200, 2400, 9600, 19200, 38400
- List of all meters records
- Every M-Bus meter record can be converted to a BACnet Analog Input
- Multiplier Variable for MBus Value. You can set a multiplier float value for each Mbus record. For exaplme you can convert cubic meter/hour Gas to KWH just set the multiplier to 10.7
- Unit conversion. The device converts automatically the Mbus unit to BACnet unit, but you cal also set the BACnet unit for every Mbus record.
- Web Interface Configuration for M-Bus, meter name, reading Interval.
- Daily meter readings are saved in flash memory
- Hourly, daily, montly and yearly Meter Consumption reports
  The consumption data is written on an external SD-Card
- Export meter readings and consumption information to Excel XML format or trend charts.

Modbus Characteristic:

- Support Modbus EIA-232, EIA-485 and TCP/IP Interfaces
- Baudrates 300, 600, 1200, 2400, 9600, 19200, 38400
- Web Interface for list all Object readings
- Write to Objects via BACnet or Web Interfaces.
- Configurable Interval readings and multiplier.
- Modbus Objects Coils, discrete Inputs, Holding Registers, Input Registers

1-Wire Characteristic

- Bus Interface with either USB Interface DS2490 or USB-Serial DS2480B
- connect as much devices as the 1-Wire Physical Bus permits.
- Supported devices:
    - DS18B20, DS 18S20 Temperature sensor
    - DS2438 Smart Battery Monitor, Humidity sensor
    - DS2423 Counters
    - DS2408 8 Channel Bidirectional Port
    - DS2450 Quad ADC
    - Other devices on request

BACnet Characteristics

- BACnet Connection BACnet/IP and BACnet/Ethernet
- BACnet Broadcast Management Device support included
- Broadcast "I am command" button
- converts M-Bus Units to BACnet Units
- BACnet Services supported:
  Read Property Service, Read Property Multiple Service, Write Property Service (support for priorities), TimeSynchronization Service, UTCTimeSynchronization Service, Subscribe-COV Service, ConfirmedEventNotification Service, Subscribe-COV-Property Service, Who-Is and I-Am Services, Who-Has and I-Have Services, Create Object (for Notification Class Object), Delete Object, Get EventInformation, Get Alarm Summary
- Additional BACnet Properties

Property ID	**Property Type**	**Name**
1002	unsigned	Meter Primary address
1003	unsigned	Meter Identification
1004	Unsigned	Meter Baud rate
1005	Enumerated	Meter Manufacture
1006	Unsigened	Meter Version
1007	Enumerated	Medium
1008	Bit_String	M-Bus meter Status
1010	Enumerated	Meter Error
1011	Unsigned	Meter's record number
1101	Enumerated	Modbus connection type
1102	Unsigned	Modbus Slave Address
1103	Octed String	Modbus TCP/IP Address
1104	Unsigned	Object Address

info@karasystems.eu
http://www.karasystems.eu