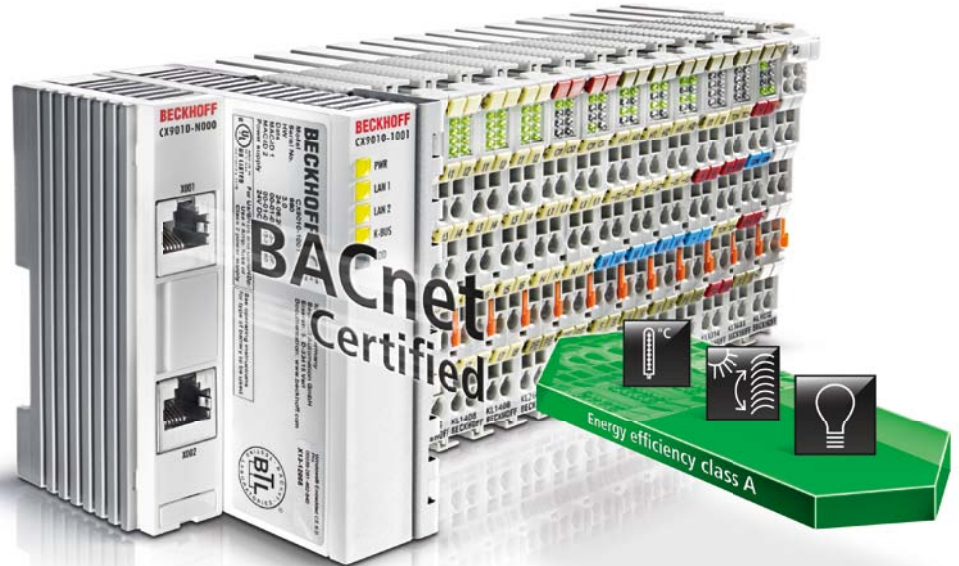


TwinCAT BACnet/IP helps answer all building automation requirements in accordance with the BACnet conformity standard

The BACnet/IP solution is executable on every Beckhoff IPC. Embedded controllers from the CX90xx and CX50xx series have so far been certified to ISO 16484-5:2010.



## BACnet controller: scalable performance and wide range of functions

With the CX90xx and CX50xx device series, Beckhoff fulfils all requirements of the worldwide BACnet standard ISO 16484-5:2010 and offers scalable control platforms for the system-spanning automation of buildings. Numerous additional functions have been implemented that extend beyond the requirements for BACnet building controllers. Thanks to the integration of the BACnet protocol in the TwinCAT System Manager it is possible to efficiently configure the I/O Bus Terminals and the BACnet devices with a single tool. The "Automapping" function enables convenient system design and shortens development time. The Beckhoff solution is based completely on in-house development, demonstrating the company's high level of BACnet know-how.

In TwinCAT BACnet/IP, Beckhoff offers a complete building automation-capable product line that is characterized by high scalability: from the compact ARM-based CX90xx controller, which supports up to a thousand data points, to the CX5020, on which several thousand data points can be centrally collected and processed. These powerful devices can be used without restriction as BACnet Building Controllers (BBC). The DIN rail-mountable Embedded PCs from the CX-series integrate an interface for the direct serial connection of the Bus Terminals.

The multitude of signal types in the Bus Terminals system, from the digital and analog inputs and outputs to the interfaces for the integration of subsystems such as EIB/KNX, DALI, MP-bus, LON, EnOcean, M-bus, DMX and Modbus, facilitates the realization of all building automation requirements.

### **TwinCAT BACnet/IP: successfully certified to ISO 16484-5:2010**

In February 2012 the Beckhoff TwinCAT BACnet/IP product line received BACnet certification, corresponding to the worldwide ISO 16484-5:2010 standard. The CX9001, CX9010, CX5010 and CX5020 Embedded devices fulfil the conformity requirements for to BBC profile, supplemented by numerous additional functions.

### **Convenient and efficient configuration of BACnet objects**

BACnet Servers and Clients can be created with their BACnet objects in a structured manner using the Beckhoff TwinCAT System Manager. BACnet properties can be parameterized and conveniently linked with the PLC as process data.

This is assisted by extensive automation functions which, together with BACnet function blocks from the PLC library TcBACnet.lib, create BACnet/IP configurations from a PLC program and link process data variables. Access to BACnet data via an acyclic interface enables the efficient implementation of visualization components.

A powerful hardware connection is available to the TwinCAT BACnet/IP controllers in the extensive range of Beckhoff Bus Terminals, with over 400 different signal types. Appropriate BACnet objects for a hardware configuration can be created and linked to the Bus Terminal function using the I/O Automapping function. The monitoring of the hardware status has been integrated into the BACnet/IP implementation and is available to BACnet/IP applications without additional expense.

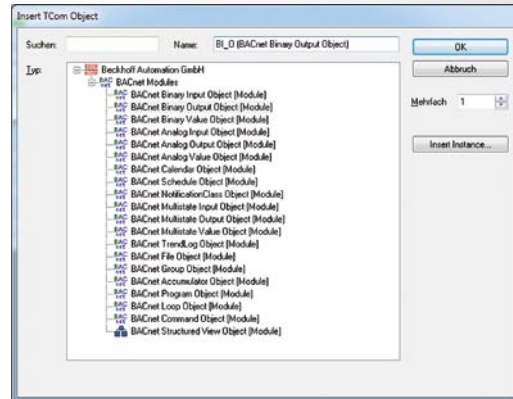
**Extensive additional functions**

Extensive additional functions supplement the required interoperability function blocks of the Beckhoff BBC devices. The way is opened to the global use of TwinCAT BACnet/IP by support for the Unicode character set UTF8. Further functions cover the dynamic creation of BACnet objects, whereby timing diagrams and trend objects can be subsequently created and configured. Distributed clocks can be synchronized with the aid of the supported Client and Master functions. Also, the adjustment to summer and winter time can be carried out automatically by the integrated operating system functionality. BBMD (BACnet Broadcast Management Device) services have been integrated into TwinCAT BACnet/IP for use in widely distributed networks.

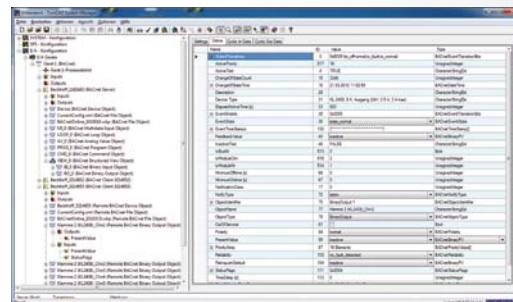
The integration of spatially remote and third-party devices is particularly convenient within the framework of the Client functionality. BACnet networks can be scanned: the devices found are clearly represented in the System Manager; the properties can be parameterized and made available to PLC programs as process data. The property data of the BACnet Clients can be efficiently updated by signalling the changes of values (COV).

Here, Beckhoff implements not only the COV service, which encompasses the changes of values of a few defined properties, but also supports the COV Property service, with which the changes of values of an arbitrary number of properties can be subscribed. Thanks to support for the EDE format (Engineering Data Exchange), Beckhoff controllers also work in connection with BACnet devices from other manufacturers. TwinCAT BACnet/IP is rounded off by extensive diagnostic functions.

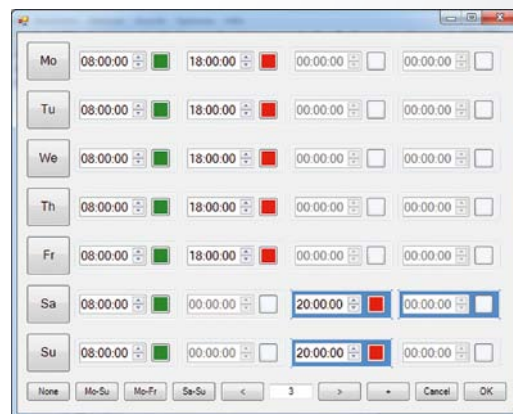
Further Information:  
[www.beckhoff.com/BACnet](http://www.beckhoff.com/BACnet)



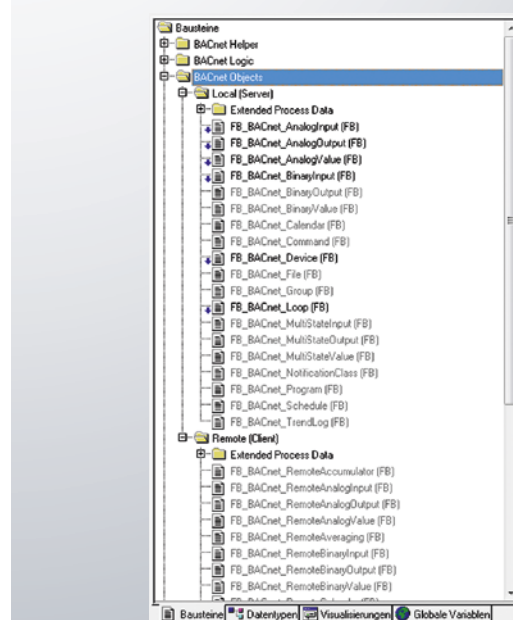
BACnet object list



BACnet properties



BACnet schedule



BACnet library