



## Data Sheet CODESYS BACnet SL

CODESYS BACnet SL is a product that extends the functionality of a device to implementing ANSI/ASHRAE Standard 135-2012 compliant applications in building management systems. This function is integrated directly into the CODESYS Development System.

### Product description

CODESYS BACnet SL consists of a BACnet runtime component that is accessed by the IEC application. With CODESYS BACnet SL, applications are equipped with a BACnet interface in the CODESYS Development System. In a building management system that is based on BACnet, applications can be monitored and controlled by means of the BACnet protocol.

Integrated libraries, devices, and plug-ins allow for project engineering and implementation of an application with BACnet support. For example, to provide an analog value (BACnet Analog Value) in the BACnet network, an appropriate BACnet Analog Value device just has to be inserted into the device tree of the CODESYS application.

CODESYS BACnet SL supports BACnet IP functionality via Ethernet interfaces, providing extensive configuration and implementation capabilities for BACnet objects. The principles and operating methods of CODESYS BACnet SL are aligned with the recommendations of AMEV-AS-B.

### Architecture

CODESYS BACnet SL is based on a runtime component which contains the BACnet stack. This runtime component is accessed by a plug-in that provides libraries and devices for this purpose. There are three libraries: CmpBACnet, BACnet and BACnetDefaultImpl.

The CmpBACnet-library provides all the BACnet data types and a low level API to access the BACnet stack.

The BACnet-library is about to significantly simplify the task of BACnet application programming. It provides easy to use function blocks for BACnet objects and client requests, as well as an event mechanism to handle BACnet stack service request callbacks. BACnet object properties can be configured regarding existence, writability and persistence.

The BACnetDefaultImpl-library is about to further reduce the development effort and the amount of IEC application code the application developer has to create for aspects for which the BACnet standard ASHRAE 135 doesn't provide definitions for. CODESYS implementations for those aspects need to be based on some assumptions on both the PLC and the application. That's why such implementations must not be fixed in BACnet-library, preventing to realize different use cases or dealing with constraints. The BACnetDefaultImpl-library is the place to put those "default implementations". In best case (assumptions fit the requirements/constraints) the "default implementation" of a certain aspect can be used out of the box. If this is not the case, the "default implementation" of a certain aspect can be used as a good example and starting point for an PLC / application specific implementation. BACnetDefaultImpl-library contains amongst others "default implementations" covering object-property-persistence, backup/restore, Trend Log, DCC, TimeSync/UTCTimeSync and Re-Init-Device.

The CODESYS BACnet plugin provides consistency checking of BACnet object ID's, library versions and EDE export/import.

### BACnet objects

The basic functionalities of BACnet objects are already implemented in the BACnet stack of the runtime component. For example, this can be used for replying directly to access to the Read Property of the BACnet client, without users having to perform additional implementations. Users can also implement and customize access via hooks.

The following BACnet objects are available:

Accumulator	Calendar	Integer Value	Notification Class
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Analog Input	Command	Large Analog Value	Positive Integer Value
Analog Output	Device	Life Safety Point	Program
Analog Value	Event Enrollment	Life Safety Zone	Pulse Converter
Averaging	Event Log	Loop	Schedule
Binary Input	File	Multi-state Input	Structured View
Binary Output	Global Group	Multi-state Output	Trend Log
Binary Value	Group	Multi-state Value	Trend Log Multiple

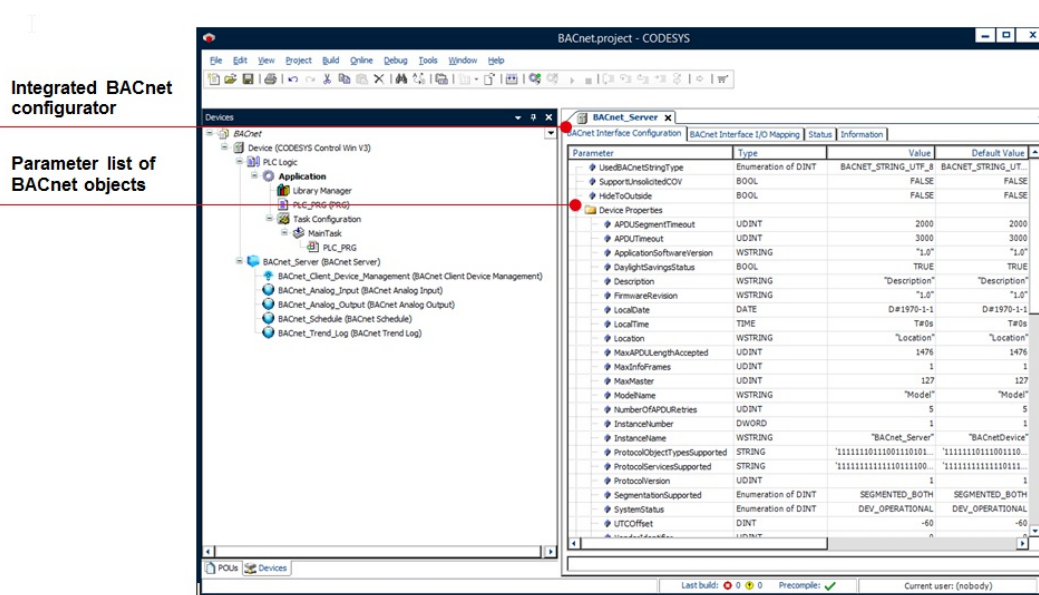
BACnet objects in runtime mode are accessed by the functions blocks of devices.

## BACnet client access

The following BACnet client requests are available:

Acknowledge Alarm	Get Enrollment Summary	Restore BACnet Device
Add List Element	Get Event Info	Subscribe COV
Backup BACnet Device	Life Safety Operation	Subscribe COV Property
Confirmed Private Transfer	Read Property	Time Synchronization
Confirmed Text Message	Read Property Multiple	UTC Time Synchronization
Create Object	Read Stream File	Write Property
Delete Object	Read Range	Write Property Multiple
Device Comm Control	Reinitialize Device	Write Stream File
Get Alarm Summary	Remove List Element	

BACnet client access is provided by BACnet client function blocks which could be used via CODESYS BACnet client devices or directly without a device.



Picture 1: Example of a simple BACnet application in CODESYS

## BACnet conformity and certificate

The conformity of BACnet devices - for example matching BACnet Device Profile B-BC - built with CODESYS BACnet SL could be tested and attested efficiently by an accredited BACnet testing laboratory. Corresponding tests are prepared and are used by CODESYS in the quality assurance process of CODESYS BACnet SL. A successful BACnet conformity test done by an accredited BACnet testing laboratory is the primary prerequisite for a BACnet certificate and listing at BACnet International. Preparation and attendance of a BACnet conformity test requires detailed knowledge of the BACnet functionality, the testing procedures as well as the required documents. It is highly recommended to arrange appropriate consulting and support (by means of a service contract with CODESYS) prior to a BACnet conformity test.

## General information

### Vendor:

CODESYS GmbH  
 Memminger Strasse 151  
 87439 Kempten  
 Germany

### Support:

<https://support.codesys.com>

### Item:

CODESYS BACnet SL

### Item number:

2303000005

### Sales:

CODESYS Store

<https://store.codesys.com>

### Included in delivery:

- Package for the CODESYS Development System including license agreement and online help
- License key

## System requirements and restrictions

<b>Programming System</b>	CODESYS Development System V3.5.15.0 or higher
<b>Runtime System</b>	CODESYS Control V3.5.15.0 or higher
<b>Supported Platforms/ Devices</b>	<ul style="list-style-type: none"> <li>• CODESYS Control for Win (not RTE)</li> <li>• CODESYS Control for Linux</li> <li>• CODESYS Control for Raspberry Pi</li> <li>• CODESYS Control for BeagleBone</li> <li>• CODESYS Control for emPC-A/iMX6</li> <li>• CODESYS Control for emPC-A/iMX6</li> <li>• CODESYS Control for PLCnext</li> <li>• CODESYS Control for WAGO Touch Panels 600</li> </ul> <p>Note: Other platforms are supported provided that the device manufacturer also supports CODESYS BACnet.</p>
<b>Additional Requirements</b>	-
<b>Restrictions</b>	-
<b>Licensing</b>	License activation optional on CODESYS Key or Soft Key (Soft Key: free of charge component of CODESYS Controls)
<b>Required Accessories</b>	-

*Note: Not all CODESYS features are available in all territories. For more information on geographic restrictions, please contact [sales@codesys.com](mailto:sales@codesys.com).*

*Note: Technical specifications are subject to change. Errors and omissions excepted. The content of the current online version of this document applies.*