



**LITECOM**

BACNET

## **Legal information**

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## Table of contents

<b>1</b>	<b>How to use these instructions .....</b>	<b>3</b>
<b>2</b>	<b>Other available documents .....</b>	<b>5</b>
<b>3</b>	<b>Safety instructions .....</b>	<b>6</b>
<b>4</b>	<b>Navigation principles .....</b>	<b>7</b>
<b>5</b>	<b>LITECOM and BACnet .....</b>	<b>8</b>
<b>6</b>	<b>Licensing .....</b>	<b>10</b>
<b>7</b>	<b>Configuration .....</b>	<b>11</b>
7.1	Overview of the “BACnet interface to the BMS” app .....	11
7.2	Global settings .....	12
7.3	Configuring data points .....	13
7.3.1	Editing a data point.....	19
<b>8</b>	<b>Appendix .....</b>	<b>20</b>
8.1	Factory settings .....	20
8.2	Icons .....	22
8.3	Glossary .....	25

# 1 How to use these instructions

We are pleased that you have chosen this *Zumtobel Lighting GmbH* product. So that you can get the most from these instructions, this section provides the following information:

- Signs and icons in these instructions
- Further information
- Target audience of these instructions
- Software version

## Signs and icons in these instructions

The following signs and icons are used in these instructions:


Sign/icon	Explanation								
1.	Individual steps in the instructions are numbered.								
▷	Single-step instructions are indicated by the ▷ icon at the beginning of the line.								
➡	After a step has been described, a description of the expected results will follow. These results are indicated by the ➡ icon at the beginning of the line.								
—	Requirements which need to be checked before carrying out a step are indicated by —.								
i	Notes can be recognised by the i icon. In addition, notes are identified by the word <b>Note</b> .								
[ <b>Bold text</b> ]	Bold text indicates words that are shown on a device display or software user interface.								
	<p>Danger and safety instructions are indicated by this icon. Safety and warning information is labelled and classified using the following words:</p> <table> <tr> <td><b>DANGER</b></td><td>indicates an immediate danger. This could lead to death or severe injury if not avoided.</td></tr> <tr> <td><b>WARNING</b></td><td>indicates a potentially dangerous situation. This could lead to death or severe injury if not avoided.</td></tr> <tr> <td><b>CAUTION</b></td><td>indicates a potentially dangerous situation. This could lead to minor injury or damage to property if not avoided.</td></tr> <tr> <td><b>Attention</b></td><td>indicates a situation involving potential damage. If it is not avoided, the product or something in the vicinity may be damaged.</td></tr> </table>	<b>DANGER</b>	indicates an immediate danger. This could lead to death or severe injury if not avoided.	<b>WARNING</b>	indicates a potentially dangerous situation. This could lead to death or severe injury if not avoided.	<b>CAUTION</b>	indicates a potentially dangerous situation. This could lead to minor injury or damage to property if not avoided.	<b>Attention</b>	indicates a situation involving potential damage. If it is not avoided, the product or something in the vicinity may be damaged.
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<b>Attention</b>	indicates a situation involving potential damage. If it is not avoided, the product or something in the vicinity may be damaged.								

Table 1: Signs and icons in these instructions

## Further information

Further information on the setup and function of your *LITECOM* system can be found in our product and system documentation.

If you should have any further questions, please contact your sales partner.

General information on our products can be found on our website:

[www.zumtobel.com](http://www.zumtobel.com)

## Target audience of these instructions

These instructions are intended for electricians and system integrators without any special product training who would like to connect a *LITECOM* system to an external system via BACnet.

## Software version

These instructions are based on software version *LITECOM 3.0.1*.



### Note

This manual contains path information which can be used to access the configuration options. The path always starts from the app overview.

Example: "Path: app overview > **Basic settings** > **Date and time**" means that you should go to the app overview, tap on **Basic settings** and then tap the **Date and time** button.

## 2 Other available documents

All *LITECOM* manuals can be downloaded from the website:

<http://www.zumtobel.com/gb-en/products/litecom.html>

Manual	Description
Commissioning and maintenance	This manual is aimed at electricians without any special <i>Zumtobel</i> product training and describes how the basic functions can be commissioned. It also describes general maintenance functions.
Shows	This manual is aimed at electricians without any special <i>Zumtobel</i> product training and describes how shows can be commissioned and configured.
Special luminaires	This manual is aimed at electricians without any special <i>Zumtobel</i> product training and describes how special luminaires (e.g. RGB luminaires, TW luminaires, <i>SEQUENCE infinity</i> ) can be commissioned and configured.
Daylight linking	This manual is aimed at electricians without any special <i>Zumtobel</i> product training and describes how daylight linking with sky scanner or with one or more light sensors can be commissioned and configured.
Blind control	This manual is aimed at electricians without any special <i>Zumtobel</i> product training and describes how blind control can be commissioned and configured.
Self-contained emergency luminaires	This manual is aimed at electricians without specific <i>Zumtobel</i> product training and describes how emergency lighting functions for self-contained emergency luminaires can be commissioned, configured and monitored in a <i>LITECOM</i> system that itself has already been commissioned.
REST API & MQTT	This manual is aimed at system integrators without any special <i>Zumtobel</i> product training and describes how REST API and MQTT can be commissioned and configured.

Table 2: Other available documents – *LITECOM*

### 3 Safety instructions



#### Attention

- The *LITECOM* system may only be used for the application area specified.
- Relevant health and safety regulations must be observed.
- Assembly, installation and commissioning may only be carried out by qualified personnel.
- The *LITECOM* system and connected devices can only be operated when in complete working order.
- The manufacturer is neither liable nor does it accept any guarantee for consequential damage that may occur if these instructions are not followed.

## 4 Navigation principles

There are different buttons in the web application for commissioning, configuring and operating the system. If a button is tapped, its colour changes briefly.











Button	Description
	<p>Set value (e.g. on the start page)</p> <p>You can enter a specific value in the click area so that all devices have the same control value.</p> <p>If, for example, different control values (80%, 60%) are set for the luminaires and you tap on 50%, all luminaires switch to the control value of 50%.</p> <p>If you tap on the left or right click area, the value you are setting decreases or increases respectively in the entire effective range by one unit. If different control values are saved for the luminaires (80%, 60%, 20%) and you tap on the ☀ button, these control values are increased by one unit (81%, 61%, 21%). This function is not available for all setting options.</p>
	<p>Set value (e.g. fade time)</p> <p>Tap these buttons to increase or decrease the value being set. Tap the button to change the value by one unit. Tap and hold the button to change the value, and release when the desired value has been reached. The longer the button is held, the faster the value is changed.</p>
	<p>Special feature: set the time</p> <p>If the time is tapped, the <b>Set time</b> view appears. The hours and minutes can be set separately here.</p>
	<p>Expand – collapse</p> <p>The arrow indicates that additional information or selection options can be displayed (e.g. devices in a group).</p> <p>Tap the arrow pointing right to expand the information or selection options. The arrow changes so that it is pointing down.</p> <p>Tap the arrow pointing down to collapse the information or selection options. The arrow changes so that it is pointing right again.</p>
	<p>Save or confirm</p> <p>Tap this button to save the settings or confirm a message.</p>
	<p>Option not selected – option selected (single choice)</p> <p>This button marks multiple options that are available (e.g. different types of date groups), from which only one can be selected. As soon as an option for a switch is selected, all other switches change to the other option accordingly.</p>
	<p>Option not selected – option selected (multiple choice)</p> <p>This button marks multiple options that are available, from which multiple options can be selected. As soon as an option is selected, it is highlighted.</p>
	<p>Setting not selected – setting selected</p> <p>If an empty button is tapped (e.g. blind position at device level), the button is filled in with colour. One or more control elements (such as sliders) appear below.</p>
	<p>Switch between individual pages of the app overview</p> <p>The number of points corresponds to the number of the pages in the app overview. The point filled in with colour indicates the page currently being displayed. Tap an empty point to go to the corresponding page.</p>
	<p>Tap the logo to access the <b>Information</b> view. This page contains manufacturer information, the reference number and version of the web application and information on the licences used.</p>

Table 3: Navigation principles



## 5 LITECOM and BACnet

### External system connecting options

*LITECOM* provides other building systems with a facility for accessing *LITECOM* device information and services. It is possible to read out and also set properties when doing this.

*LITECOM* generally acts as a passive participant, which transmits status information either once by request or in an event-related way. *LITECOM* cannot actively call up or modify any properties or methods of other systems.

*LITECOM* can connect to external systems in the following ways:

- Using BACnet to connect to building management systems, for visualisations, building equipment centres etc.

### BACnet

BACnet is a global standard for data exchange between different systems and devices.

BACnet stands for *Building Automation and Control networks*, a protocol developed by the *American Society of Heating, Refrigeration, and Air Conditioning Engineers Inc. (ASHRAE – [www.ashrae.org](http://www.ashrae.org))*, and known as the *ANSI/ASHRAE 135-1995* standard. The objective of BACnet is to enable open, interoperable building automation in functional buildings. BACnet describes a method for exchanging data between heating, ventilation and air conditioning technology systems (HVA technology). The term system includes devices at field level (sensors) as well as at automation (control devices) and management level (building process control technology). HVA technology can also be used to take third-party subsystems, such as lighting control and safety engineering, into consideration. The *ASHRAE Standards Committee* submitted an *Addendum c* to the BACnet protocol, describing the data objects from the field of alarm system technology.

BACnet standardises:

- Alarm routing
- Historiography
- Reinitialisation
- Time and calendar functions
- Data backup
- Loading applications in automation stations

The advantage of BACnet is that it does not require any specific hardware (such as Neuron® Chip with LonTalk® protocol). Instead, it can be implemented on any operating system and hardware platform. “BACstacks” are available on the market to support developers. A BACstack is a library of high-level language programs that supports programmers when using BACnet for a certain task (automation station, building control system). The BACstack routines take over the actual operation of the BACnet protocol so that the programmer can concentrate on the actual application. Another advantage of the application of commercially available BACstacks is that this way, it ensures that the BACnet protocol is implemented correctly.

### BACnet certificates

*LITECOM BACnet* has been tested by *BACnet Testing Labs* and the documents or certificates are stored on its website: <https://www.bacnetinternational.net/btl/index.php?pr=4>

## BACnet server and BACnet ID

The BACnet server for *LITECOM* can work on a priority from 1–16, whereby the default priority is set to 10 upon delivery.

The BACnet ID of the *LITECOM CCD* can be freely selected but can only be used once on the network. The default BACnet ID is set to 157 upon delivery.

## Requirements

—The following network port must be open for BACnet to work:


Service	Network port	Log
BACnet	47808	UDP broadcast

Table 4: Network requirements for BACnet

—It is recommended to use a BACnet explorer to verify the functionality.

## Configuring the BACnet interface in LITECOM

The following steps are required:

- Step 1: Activate the **BACnet** app.  
Path: App overview > **LITECOM Store**  
For more information see Section [Licensing](#) <sup>10</sup>
- Step 2: Define the default gateway.  
Path: App overview > **Basic settings** > **Network settings** > **Use static IP address** > **Edit**  
For more information see **Commissioning and maintenance** manual
- Step 3: Define *LITECOM CCD* as the BACnet server. BACnet device name and *BACnet Device ID* and optionally, select *LITECOM CCD* as the *Broadcast Management Device (BBMD)*.  
Path: App overview > **BACnet** >  (next to respective *LITECOM CCD*)  
For more information see Section [Overview of the app BACnet - Interface to BMS](#) <sup>11</sup>
- Step 4: Configure the global settings.  
Path: App overview > **BACnet** > **Global settings**  
For more information see Section [Global settings](#) <sup>12</sup>
- Step 5: Configure the data points.  
Path: App overview > **BACnet** > **Global settings** > **Configure data points**  
For more information see Section [Configure data points](#) <sup>13</sup>
- Step 6: Publish the configuration.  
Path: App overview > **BACnet** > **Publish configuration**  
For more information see Section [Overview of the app BACnet - Interface to BMS](#) <sup>11</sup>

## 6 Licensing

The **BACnet** app is only available if a licence has been activated.

There are different volume licences for BACnet (e.g. *LITECOM APP BACnet 50*, art. no. 22170744) that can be combined with each other. You first have to activate the licence before you can use the **BACnet** app.

Path: App overview > **LITECOM Store** > **BACnet**

The following steps are required:

- Step 1: request licence.  
Path: App overview > **LITECOM Store** > **Licensing information**
- Step 2: activate licence.  
Path: App overview > **LITECOM Store** > **Activate licence**

The screenshot shows a web interface with two tabs at the top: 'Licensing information' (labeled 1) and 'Activate licence' (labeled 2). The 'Licensing information' tab is active and displays the following data:

Article number:	22169158
Reference number (HW-ID):	7e7378f768859f026d0d108c83652
Licence:	activated
Number of devices:	unrestricted
Valid until:	unrestricted

A checkmark icon is located in the bottom right corner of the interface.

Figure 1: Licensing overview

	Function	Brief description
(1)	<b>Licensing information</b>	<p>This page provides information about your licence (article number of the app and reference number). You will need this information to request a licence from your sales partner.</p> <p>You can also see whether the licence has been activated or not.</p> <div> <p><b>i Note</b></p> <p>If several licences have been activated, the number of enabled devices will be added together.</p> </div>
(2)	<b>Activate licence</b>	<p>You can activate the licence with a licence number here.</p> <div> <p><b>i Note</b></p> <ul style="list-style-type: none"> <li>• To recall the ordered licence numbers, go to the <a href="http://litecom.zumtobel.com">litecom.zumtobel.com</a> website and enter the reference number (HW-ID) of the <i>LITECOM CCD</i>.</li> <li>• Multiple licences can be activated.</li> <li>• The licence number, number of activated devices and the validity period are shown for each activated licence.</li> </ul> </div>

Table 5: Licensing overview

## 7 Configuration

This section explains how to configure BACnet.

### 7.1 Overview of the “BACnet interface to the BMS” app

The following contains an overview of the functions in the **BACnet - Interface to BMS** app.

Path: App overview > **BACnet**

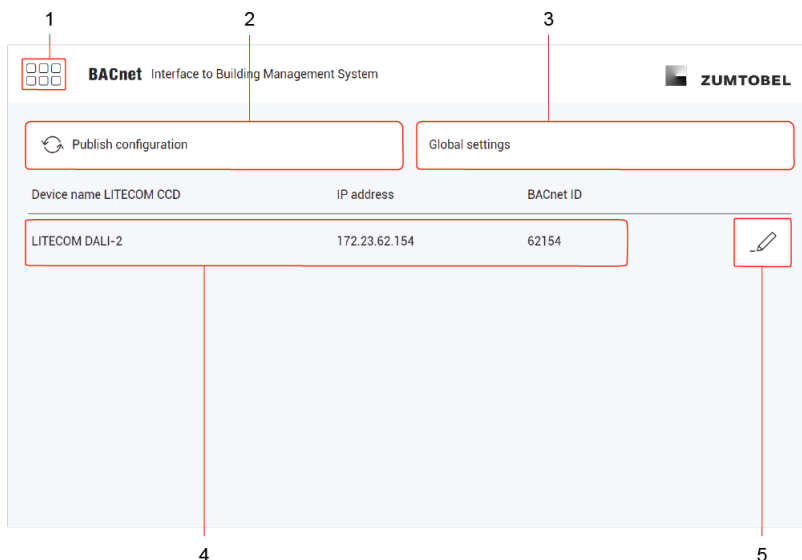


Figure 2: Overview of the app “BACnet - Interface to BMS”

	Function	Brief description
(1)	Return to app overview	Tap this button to access the app overview.
(2)	Overview of the <i>LITECOM</i> BACnet server	The <i>LITECOM CCD</i> is listed together with the BACnet device name, the IP address and the BACnet ID in the overview.
(3)	<b>Publish configuration</b>	The configuration (BACnet server settings, data points) is updated on the BACnet interface using this button. The BACnet interface is restarted for this purpose.
(4)	<b>Global settings</b>	This button is used to go to the <b>Configure global settings</b> view. In this view, you can define global settings for the entire system, configure data points and make an EDE export. For more information see Section <a href="#">Global settings</a>
(5)	Configure the BACnet server for the <i>LITECOM CCD</i>	You can define the following settings using the pencil icon to the right of the <i>LITECOM CCD</i> : <ul style="list-style-type: none"> <li>• <b>BACnet device name:</b> device name which appears specifically in BACnet. The BACnet device name may differ from the actual device name.</li> <li>• <b>BACnet ID:</b> ID which can be used to uniquely identify the device in BACnet. The ID must be unique.</li> <li>• <b>BACnet Broadcast Management Device (BBMD)</b> if the tick mark is enabled, this <i>LITECOM CCD</i> is used as the <i>Broadcast Management Device (BBMD)</i>.</li> </ul>

Table 6: Functions of the "BACnet - Interface to BMS" app

### i

#### Note

The network may be divided into several sub-networks depending on the network infrastructure. Only one *Broadcast Management Device* (BBMD) is allowed per sub-network. In BACnet a *LITECOM CCD* does not have to take on the function of the *BBMD* in a sub-network.

## 7.2 Global settings

The following contains an overview of the functions in the **Configure global settings** view.

Path: App overview > BACnet - Interface to BMS > **Global settings**

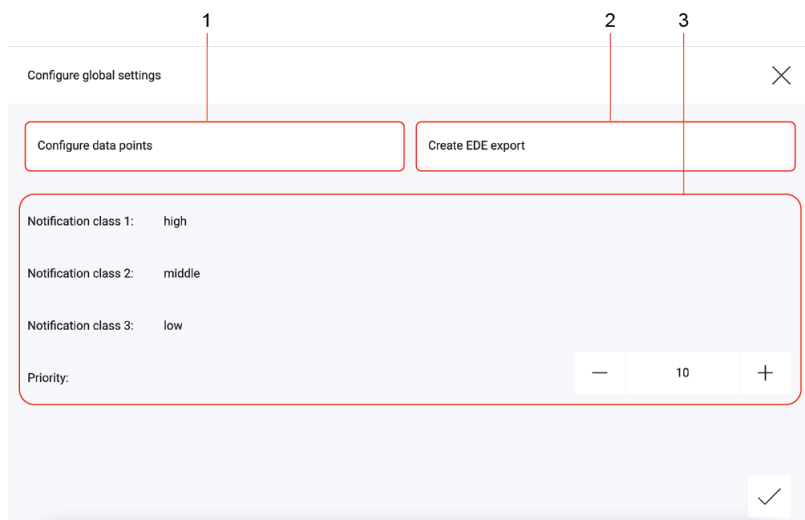


Figure 3: Functions of the “Configure global settings” view

	Function	Brief description
(1)	<b>Configure data points</b>	This button is used to go to the <b>Configure data points</b> view. You can assign and edit data points here. For more information see Section <a href="#">Configure data points</a> <sup>13)</sup>
(2)	<b>Create EDE export</b>	This button can be used to export one or more EDE files. The EDE ( <i>Engineering Data Exchange</i> ) file is a standardised form of data exchange between different subscribers or companies which communicate via BACnet. The majority of the file describes the individual data points.
(3)	<b>Notification class</b>	<i>LITECOM</i> errors can be divided into three different classes: <ul style="list-style-type: none"> <li>• <b>Notification class 1: high</b></li> <li>• <b>Notification class 2: middle</b></li> <li>• <b>Notification class 3: low</b></li> </ul> To define which notification class is assigned to a specific data point, this data point must be enabled and then edited. For more information see Section <a href="#">Configure data points</a> <sup>13)</sup>
	<b>Priority</b>	Priority with which <i>LITECOM</i> accesses the BACnet interface. <i>LITECOM</i> uses priority 10 by default, with priority 1 representing the highest priority. Commands with higher priority overwrite commands with lower priority.

Table 7: Functions of the “Configure global settings” view

## 7.3 Configuring data points

Any property of the structure of *LITECOM* or any device can generally be used as a BACnet data point. A distinction is made between the following data point types:

- Input: data point can only be read by the external system (R).
- Output: data point can be read and written by the external system (R/W).

The following contains an overview of the functions in the **Configure data points** view.

Path: App overview > **BACnet - Interface to BMS** > **Global settings** > **Configure data points**

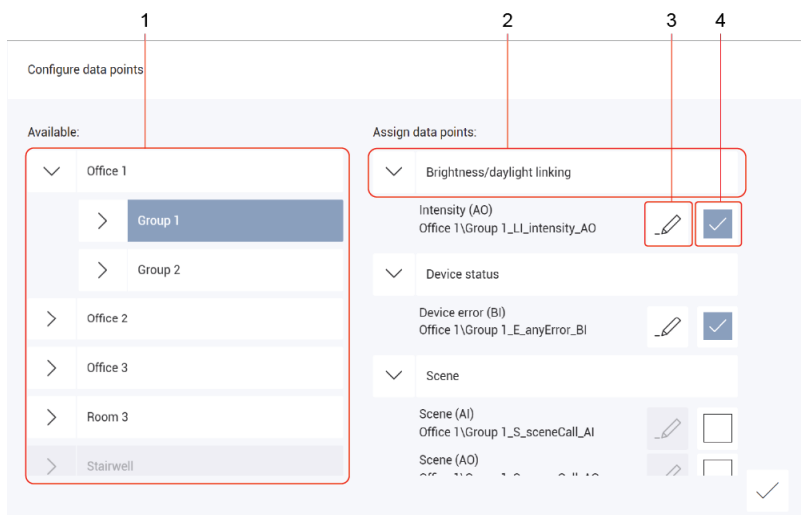


Figure 4: Functions of the "Configure data points" view

	Function	Brief description
(1)	Select zone, room, group or device	Select a zone, room, group or device so that the relevant available data points are displayed.
(2)	Data point category	Data points are displayed in categories based on their function in order to make searching for specific data points easier.
(3)	Edit data point	This button is used to go to the <b>Edit data point</b> view. In this view, you can see certain parameters for the data point (e.g. type or instance) and change certain parameters for the data point (e.g. name or description). For more information see Section <a href="#">Edit data point</a> <sup>19</sup>
(4)	Enable/disable data point	This button can be used to enable or disable a data point.

Table 8: Functions of the "Configure data points" view



### Note

- To edit a data point, first enable it by clicking the button to the right of the pencil icon.
- In the **Configure data points** view, tapping the tick mark at the bottom right does not update the data on the BACnet interface. To do this, tap the **Publish configuration** button in the overview of the app **BACnet - Interface to BMS**. For more information see Section [Overview of the app BACnet - Interface to BMS](#) <sup>11</sup>
- The name of the data point is automatically created. The name is made up of the following:
  - Device level: room/group/device/*LITECOM* type/data point type
  - Group level: room/group/*LITECOM* type/data point type
  - Room level: room/*LITECOM* type/data point type
  - Zone level: zone/*LITECOM* type/data point type

## Available BACnet data points

The following contains an overview of the available BACnet data points.

### Data points: devices

Data point	Hierarchy level	Type	LITECOM type	Data point	Value range
Device status	Actuator	R	DS	Analogue input (0 or AI)	0, 1, 2, 4 0 = no fault 1 = device error 2 = communication error 4 = lamp failure
Device error	Zone, room, group, device	R	E	Binary input (3 or BI)	0/1
Intensity	Actuator (luminaire)	R/W	LI	Analogue output (1 or AO)/analogue input (0 or AI)	0–100
Colour temperature	Actuator (luminaire)	R/W	TC	Analogue output (1 or AO)/analogue input (0 or AI)	2700–6300
Colour	Actuator (luminaire)	R/W	C	Analogue output (1 or AO)/analogue input (0 or AI)	#000000 – #FFFFFF
Blind position	Actuator (blinds)	R/W	BP	Analogue output (1 or AO)/analogue input (0 or AI)	0–100
Slat position	Actuator (blinds)	R/W	BS	Analogue output (1 or AO)/analogue input (0 or AI)	0–100
Slat angle	Actuator (blinds)	R/W	TP	Analogue output (1 or AO)/analogue input (0 or AI)	0–100
Window position	Actuator (window)	R/W	WP	Analogue output (1 or AO)/analogue input (0 or AI)	0–100
Screen position	Actuator (screen)	R/W	SCP	Analogue output (1 or AO)/analogue input (0 or AI)	0–100
Operating status	Actuator (relay)	R/W	RC	Binary output (4 or BO)/binary input (3 or BI)	0/1
Operating status	Actuator (signalling contact)	R	SC	Binary input (3 or BI)	0/1
Scene	Zone, room, group, actuator	R/W	S	Analogue output (1 or AO)/analogue input (0 or AI) multi-state output (14 or MO)/multi-state input (13 or MI)	-1* – 20 1–21
Presence	Zone, room, group, actuator (sensor)	R	P	Binary input (3 or BI)	0/1 at room/group level: 1 = min. 1 sensor reports presence 0 = all sensors report absence

Glare value	Sky scanner	R	SCG	Analogue input (0 or AI)	
Sky illuminance	Sky scanner	R	SCSK	Analogue input (0 or AI)	0–100000
Sun illuminance	Sky scanner	R	SCSU	Analogue input (0 or AI)	0–100000
Illuminance	Sensor	R	BSE	Analogue input (0 or AI)	0–4095
Wind speed	Weather station	R	WS	Analogue input (0 or AI)	0–255
Wind direction	Weather station	R	WD	Analogue input (0 or AI)	0–360
Rain	Weather station	R	R	Binary input (3 or BI)	0/1
Outdoor temperature	Weather station	R	TA	Analogue input (0 or AI)	0–255
Alarm status	Zone, room, group, actuator	R	AA	Binary input (3 or BI)	0/1
Volume	Sensor	R	NOI	Analogue input (0 or AI)	0–255
VOC	Sensor	R	VOC	Analogue input (0 or AI)	0–32767
CO2	Sensor	R	CO2	Analogue input (0 or AI)	0–32767
Temperature	Sensor	R	TA	Analogue input (0 or AI)	-128 – 127
Measured temperature	Sensor	R	MTA	Analogue input (0 or AI)	-128 – 127
Humidity	Sensor	R	RH	Analogue input (0 or AI)	0–100
Measured humidity	Sensor	R	MRH	Analogue input (0 or AI)	0–100
Signalling contact	Actuator (signalling contact)	R	SC	Binary input (3 or BI)	0/1
Relay output	Actuator (relay)	R/W	RC	Binary output (4 or BO)/binary input (3 or BI)	0/1

Table 9: Available BACnet data points for devices

## i

### Note

\*Different scenes can be created in a room or a zone. The data points reflect the different scenes as follows:

- For the data point type **Multi-State Input / Output**, from software version 2.17.0, an 'unknown' scene (*Ambiguous*) was stored.  
Scene 0 = **1**  
Scene 1 = **2**  
Scene 2 = **3**  
Scene 3 = **4**  
Scene 4 = **5**  
Scene *Ambiguous* = **6**  
If the standard scenes 0–4 are active, the 'unknown' scene corresponds to the value **6**.
- The data point type **Analogue Input / Output** has no defined area. From software version 2.17.0, the value **-1** is given for the 'unknown' scene.



## Data points: emergency operation

### Requirements:

- Emergency lum. (self-cont.) app was activated.
- Emergency luminaires are part of the *LITECOM* system.

Data point	Hierarchy level	Type	LITECOM type	Data point	Value range
Device error	Zone, room, group, actuator (self-contained emergency luminaire)	R	EE	Analogue input (0 or AI)	0–1 (actuator) at room/group level the value indicates the number of devices
Function test	Zone, room, group, actuator (self-contained emergency luminaire)	R	FT	Analogue input (0 or AI)	0–1 (actuator) at room/group level the value indicates the number of devices
Duration test	Zone, room, group, actuator (self-contained emergency luminaire)	R	DT	Analogue input (0 or AI)	0–1 (actuator) at room/group level the value indicates the number of devices
Operating status	Zone, room, group, actuator (self-contained emergency luminaire)	R	EMC	Analogue input (0 or AI)	0–1 (actuator) at room/group level the value indicates the number of devices
Duration of last FT (in min.)	Zone, room, group, actuator (self-contained emergency luminaire)	R	FTD	Analogue input (0 or AI)	
Duration of last DT (in min.)	Zone, room, group, actuator (self-contained emergency luminaire)	R	DTD	Analogue input (0 or AI)	
Lamp failure	Zone, room, group, actuator (self-contained emergency luminaire)	R	LF	Analogue input (0 or AI)	0–1 (actuator) at room/group level the value indicates the number of devices
Communication error	Zone, room, group, actuator (self-contained emergency luminaire)	R	CF	Analogue output (1 or AO)/analogue input (0 or AI)	0–1 (actuator) at room/group level the value indicates the number of devices
Locked	Zone, room, group, actuator (self-contained emergency luminaire)	R	DB	Analogue input (0 or AI)	0–1 (actuator) at room/group level the value indicates the number of devices
Deep discharge protection	Zone, room, group, actuator (self-contained emergency luminaire)	R	DD	Analogue input (0 or AI)	0–1 (actuator) at room/group level the value indicates the number of devices
DT: nominal duration not reached	Zone, room, group, actuator (self-contained emergency luminaire)	R	BF	Analogue input (0 or AI)	0–1 (actuator) at room/group level the value indicates

					the number of devices
Test time exceeded	Zone, room, group, actuator (self-contained emergency luminaire)	R	TT	Analogue input (0 or AI)	0–1 (actuator) at room/group level the value indicates the number of devices
Charging fault	Zone, room, group, actuator (self-contained emergency luminaire)	R	CHF	Analogue input (0 or AI)	0–1 (actuator) at room/group level the value indicates the number of devices
Number of devices in FT	Zone, room, group	R	FTR	Analogue input (0 or AI)	at room/group level the value indicates the number of devices
Number of devices in DT	Zone, room, group	R	DTR	Analogue input (0 or AI)	at room/group level the value indicates the number of devices
Ready to operate	Zone, room, group	R	OKS	Binary input (3 or BI)	0/1
Failure	Zone, room, group	R	ERS	Binary input (3 or BI)	0/1
Emergency operation	Zone, room, group	R	WAS	Binary input (3 or BI)	0/1
Start duration test	Zone, room, group	R/W	SDTA/SDTB	Binary output (4 or BO)	0/1
Start function test	Zone, room, group	R/W	SFT	Binary output (4 or BO)	0/1
Start inspection test	Zone, room, group	R/W	SIT	Binary output (4 or BO)	0/1
Cancel tests	Zone, room, group	R/W	ST	Binary output (4 or BO)	0/1
Result of last FT	Zone, room, group	R	LFT	Multi-state input (13 or MI)	1–10
Result of last DT	Zone, room, group	R	LDT	Multi-state input (13 or MI)	1–10

Table 10: Available BACnet data points for emergency operation

## Data points: automation

### Requirement:

—The lighting is controlled automatically (presence/daylight linking or the conditional scene recall are active).

Data point	Hierarchy level	Type	LITECOM type	Data point	Value range
Run-on time	Zone, room, group	R/W	PL	Analogue output (1 or AO)/analogue input (0 or AI)	0–5999999
Condition: time	Zone, room, group	R/W	CE	Time Value (TV)	0–1439
Required illuminance	Actuator	R/W	RI	Analogue output (1 or AO)/analogue input (0 or AI)	0–9999

Table 11: Available BACnet data points for automation

**i****Note**

- Writing at room and group level is also supported for the following data points:
  - Intensity
  - Colour temperature
  - Colour
  - Blind position
  - Slat position
  - Slat angle
  - Window position
  - Screen position
  - Operating status (relay)
- Data points without a specified value range use the “integer” type with a value range from 0–2147483647 ( $2^{31}-1$ ).
- Data point values for the **Result of last FT** and **Result of last BT** data points are coded as follows:
  1. Complete
  2. Incomplete
  3. Failed
  4. Cancelled
  5. Delayed
  - 6.–9. Delayed (1x)/(2x)/(3x)/(4x)
  10. Not started

### 7.3.1 Editing a data point

The following contains an overview of the functions of the **Edit data point** view.

Path: App overview > **BACnet - Interface to BMS** > **Global settings** > **Configure data points** > 



Figure 5: "Edit data point" view

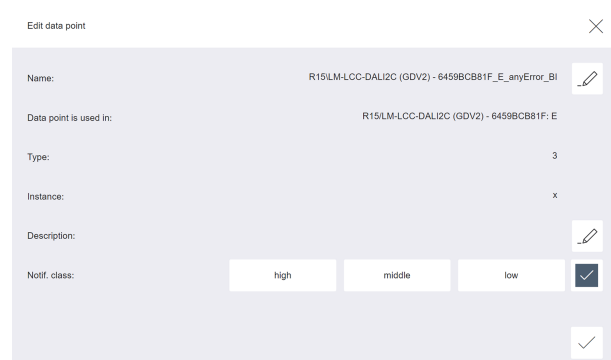


Figure 6: "Edit data point – Device error" view




Parameters	Brief description
Name assignment	<p>The automatically generated names for each data point contain the path, function and data point type.</p> <p>Automatic generation of names is described in detail in the following:</p> <p>Zones: <code>&lt;zone_name&gt;_&lt;Property&gt;_&lt;data_point_type&gt;</code>  Example: <b>Zone All rooms_sceneCall_AO</b></p> <p>Rooms: <code>&lt;room_name&gt;_&lt;Property&gt;_&lt;data_point_type&gt;</code>  Example: <b>Room 1_sceneCall_AO</b></p> <p>Groups: <code>&lt;room_name&gt;_&lt;group_name&gt;_&lt;Property&gt;_&lt;data_point_type&gt;</code>  Example: <b>Room 1_Group 1_sceneCall_AO</b></p> <p>Devices: <code>&lt;room_name&gt;_&lt;group_name&gt;_&lt;device_name&gt;_&lt;Property&gt;_&lt;data_point_type&gt;</code>  Example: <b>Room 1_Group 1_Luminaire 1_sceneCall_AO</b></p> <p>Sky scanner/weather station: <code>&lt;representer_name&gt;_&lt;Property&gt;_&lt;data_point_type&gt;</code>  Example: <b>Sky scanner - 4F11223344_illuminanceDiffuse_AI</b></p>
Data point source	Specifies the automated control to which the data point relates (e.g. if presence-linking has been enabled).
Type	Data point type (e.g. analogue input (0)).
Instance	<p>ID which can be used to uniquely identify the data point in BACnet.</p> <div>  <p><b>Note</b></p> <p>The correct values for the instance are only displayed once the configuration has been published.</p> </div>
Description	<p>Description which can be entered by the user.</p> <p>The description for the data point can be changed using the  button.</p>
Notification class	<p>Class to which errors can be assigned. For example, if a device has an error, a corresponding message is forwarded to the building management system. The building management system evaluates this information and responds accordingly.</p> <p>You can enable the notification class using the tick mark on the right. There are three classes available for classifying errors (high, middle, low).</p> <div>  <p><b>Note</b></p> <p>The parameter notification class is only available for the <b>Device error</b> data point.</p> </div>

Table 12: Parameters in the "Edit data point" view

## 8 Appendix

This section contains the following information:

- [Factory settings](#) 
- [Icons](#) 
- [Glossary](#) 

### 8.1 Factory settings

#### Standard scenes

As soon as you create a room in your *LITECOM* system, five standard scenes are enabled in the room. The following table contains the defaults for these scenes.






Scene	Absence	Working	Writing	Meeting	Workshop
Icon					
Intensity	0%	100%	40%	16%	7%
Tunable White	3000 K	3000 K	3000 K	3000 K	3000 K
Colour	White	White	White	White	White
Pattern ( <i>SEQUENCE infinity</i> )	–	–	–	–	–
Light balance (direct/indirect)	50:50	50:50	50:50	50:50	50:50
Blind position	0%	0%	0%	0%	0%
Slat position	0%	0%	0%	0%	0%
Window position	100%	100%	100%	100%	100%
Screen position	0%	0%	0%	0%	0%

Table 13: Standard scenes and their defaults

## Standard pattern

The following values are stored for the 10 standard patterns.











Pattern	Left	Centre	Right	Indirect	Curve
 All off	0%	0%	0%	0%	–
 Direct light	100 %	100 %	100 %	0%	Wave-like
 Informal meeting	0%	0%	0%	100 %	Wave-like
 Conference	0%	100 %	0%	100 %	Wave-like
 Concentrated work	100 %	100 %	100 %	100 %	Wave-like
 Orientation left	100 %	0%	0%	0%	Wave-like
 Orientation right	0%	0%	100 %	0%	Wave-like
 Presentation left	100 %	50%	0%	0%	Wave-like
 Presentation right	0%	50%	100 %	0%	Wave-like
 Tablet PC	100 %	0%	100 %	100 %	Wave-like

Table 14: Standard patterns and their default values

## 8.2 Icons

This section contains an overview of all icons shown on the web application.

### “Scenes” app






















Icon	Description
	Intensity
	Colour
	Tunable White
	Light balance
	Blind position
	Slat position
	Window position
	Screen position
	Different settings are stored for this setting at room, group and device level
	Setting is controlled via daylight linking
	A show is stored for this setting; the settings can only be changed in the <b>Shows</b> app
	Configuration unknown
	Locate device
	Zone
	Blind position: no movement with scene recall
	Window position: no movement with scene recall
	Slat position: no movement with scene recall
	Screen position: no movement with scene recall

Table 15: Icons in the "Scenes" app

### “System image” app

Icon	Description
	Luminaire
	RGB luminaire
	TW luminaire
	Balance luminaire
	Free-standing luminaire
	Relay (luminaire)
	Blinds (type 3, type 3+4)
	Blinds (type 4)





























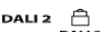
Icon	Description
	Window
	Screen
	<i>SEQUENCE infinity</i>
	Momentary-action switch/standard switch
	CIRCLE control unit
	<i>LM-CIRIA</i>
	Remote control
	Presence detector (generic and <i>MSensorG3</i> )
	Light sensor
	CO2 sensor
	Humidity sensor
	Noise sensor (average, maximum and minimum)
	Temperature sensor
	Detection of power consumption
	VOC sensor
	General contact
	Signalling contact, e.g. <i>LM-4RUKS</i>
	Rain (input contact)
	Wind (input contact)
	Ice (input contact)
	Emergency luminaire/safety sign luminaire
	Emergency luminaire/safety sign luminaire (lighting management)
	Rocker switch (2x)
	Rocker switch (3x)
	Rocker switch (4x)
	<i>ONLITE BRI</i>
	Sky scanner
	Weather station
	DALI-2 master (generic and <i>MSensorG3</i> )

Table 16: Icons in the "System image" app



## Blind control" app





Icon	Description
	Glare protection position
	Slat position
	Transmittance
	Facade alignment

Table 17: Icons in the "Blind control" app

## 8.3 Glossary

Term	Explanation
Absence scene	Scene in an area where absence is detected. Any scene can be defined as an absence scene.
Action timeframe	Time during which a function is enabled (e.g. presence linking). The action timeframe can be defined using timeframes and a dead time.
Balance luminaire	Luminaire consisting of at least two lamps, one for direct lighting and one for indirect lighting. For Balance luminaires, the light balance can be changed in addition to the intensity.
Blinds (type 3)	Blinds which can move to different positions. This type of blinds does not have slats or has slats that cannot be adjusted.
Blinds (type 3+4)	Blinds which can move to different positions and have adjustable slats.
Blinds (type 4)	Blinds with slats – the position of the blinds is fixed, but the slats are adjustable.
Building service	Component of the building's technical equipment which is part of the building's infrastructure. In <i>LUXMATE</i> building management systems, building services are controlled via modes of operation. A building service can be controlled via more than one mode of operation. Examples of building services are lighting and blinds.
Contrast sensor	Sensor that presents the environment as a contrast image
DALI load	Typical power consumption of a subscriber on the DALI control line.
DALI-2	Expansion of the existing interface log for digital communication between control gears for the lighting system – DALI ( <i>Digital Addressing Lighting Interface</i> ). Expansion for control devices as per IEC 62386 and addition of new commands and functions. More detailed information can be found on the website of the <i>Digital Illumination Interface Alliance (DiiA)</i> .
Delay time	Time during which a specific threshold must be breached in order to trigger a response. The response or the event that follows is only permitted after this time has expired.
Detail control	A way of controlling devices either individually or in groups
Dimming range	A range in which the intensity of the luminaires can be smoothly adjusted. It is restricted to the physical upper and lower limits. Setting a lower and upper dimming limit can limit the dimming range further.
eD device	Sensors, control points, input devices and control units that are used in DALI systems. Each of these devices has its own address (0 to 63) which can be used to operate it individually.

Term	Explanation
End position	Maximum position (e.g. of blinds) defined by a limit switch. There can be an upper and a lower end position.
ExD	Self-contained emergency luminaire with a nominal duration of x hours (e.g. <i>E1D</i> = nominal duration of 1 hour), individual monitoring via DALI, central test and adjustable intensity in emergency operation.
Fade time	<p>The time it takes to change from one value (scene, presence value) to another.</p> <p>Example with a scene as a value: If the fade time is, for example, 0 seconds, the change from one scene to the next is immediate. If the fade time is 20 seconds, the outputs will smoothly adjust to gradually switch to the control values for the next scene within those 20 seconds. All outputs reach the desired value simultaneously (once the fade time has expired).</p>
Ice alarm	The ice alarm should stop blinds from moving when ice has formed on them, preventing them from being damaged. It is triggered when the outdoor temperature drops below a certain threshold and a rain sensor has detected precipitation.
Instance	Sub-category of an input device. Each input device can have up to 32 instance types (e.g. light sensor, presence detector, remote control, momentary-action switch, and many more).
Light balance	Ratio of direct to indirect lighting
Light source	System for generating light in a luminaire (e.g. lamp, LED module)
Location	Process for determining where a network or bus subscriber is located or what its address is. How subscribers are located differs from device to device. There are three methods of locating devices: visual, acoustic and tactile.
Mode of operation	Determines which building service is being controlled. Each building service is controlled by at least one mode of operation. Examples of modes of operation are intensity, blind position and slat position.
Momentary-action switch (MAS)	Control point that upon being operated either closes and/or opens a circuit, depending on its wiring, but without "clicking" into place like a standard switch, i.e. once it is released the affected circuit returns to its original state.
Movement range	Defines the capabilities of blinds or a window to move between the end positions, if the blinds/window have an actuator which is able to measure the distance covered and send feedback about the current position of the blinds/window. Setting a lower and upper limit of the movement range can limit the range further.
Pattern	Preset control values for 3 or 4 DALI short <i>SEQUENCE infinity</i> addresses, through which activity-related light distributions are created (e.g. concentrated work, presentation, conference)

Term	Explanation
Presence linking	A way of controlling luminaires whilst taking into account the presence of people. Presence is usually detected by presence detectors.
Presence scene	Scene in an area where the presence of at least one person is detected. Any scene can be defined as a presence scene.
Production number	Globally unique identification number of a <i>LUXMATE</i> device. The serial number can be determined from the production number.
Rain alarm	The rain alarm should prevent blinds (such as awnings) from being damaged by rain. It is triggered after a rain sensor determines that a defined precipitation level has been exceeded during a specified delay time.
Reference number	Number used to generate and check the licence number.
Required illuminance	Illuminance required at minimum at a specific location (e.g. workspace) so that a person can complete visual tasks effectively and accurately.
RGA address	Address used in <i>LUXMATE</i> systems for communication purposes. The RGA address is based on the following address scheme: room address/group address/individual address.
RGB luminaire	Luminaire consisting of three individual lamps (red, green, blue). Coloured light is generated through additive colour mixing.
Run-on time	Time that starts after a certain event (e.g. the last person leaves the room) and after which an action is triggered (e.g. fade time starts, absence scene is recalled). If an event occurs during the run-on time (e.g. someone re-enters the room), the run-on time starts again. A typical application for run-on time is the stairwell function.
Slat position	Specifies how the slats of blinds tilt. Expressed as a percentage (%).
Special luminaire	Luminaire with multiple light sources (such as lamps, LED modules). The <i>LITECOM</i> web application can be used to combine the light sources into one luminaire so that they can be controlled together.
Standard switch	Control point that upon being operated either closes or opens a circuit and “clicks” into place as it does so (as opposed to a momentary-action switch).
System extension	Process during which new network or bus subscribers are addressed, which are used in an existing and addressed system. Addressing for previously addressed network or bus subscribers will remain unchanged.
Timeframe	Limited time period between two or more events which already have set times.  Example: two timeframes are defined for presence linking (07:00–12:00 and 14:00–18:00). Presence linking is enabled during these timeframes.

Term	Explanation
Tunable White	Option of dynamically changing the light of the LED in the white light range. Colour temperatures from 2700 K to 6500 K, for example, can be variably set using a control. The LED luminaires achieve high colour rendering of at least Ra 80 to Ra 90.
TW luminaire	<p>Luminaire that supports Tunable White pursuant to IEC 62386-209. There are two types of TW luminaire:</p> <ul style="list-style-type: none"> <li>• Luminaires that consist of at least two individual lamps, one for warm-white and one for cool-white.</li> <li>• Luminaires that have one individual lamp that supports Tunable White.</li> </ul>
Visual location	<p>Type of location in which the address of a network or bus subscriber is used to visually locate this subscriber in the field.</p> <ul style="list-style-type: none"> <li>• A visually located luminaire, for example, responds by switching to the maximum level.</li> <li>• A visually located set of blinds, for example, responds by moving to the lower end position.</li> </ul>
Wind alarm	The wind alarm should stop blinds from moving when wind speeds are high, for example, preventing them from being damaged. It is triggered after a wind speed sensor determines that a defined wind speed has been exceeded during a specified delay time.

T H E L I G H T

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