

Date: Sep 14, 2011
Vendor Name: LOYTEC electronics GmbH
Product Name: L-DALI BACnet DALI Controller
Product Model Number: LDALI-ME204
Applications Software Version: V2.x
Firmware Revision: 2.2.0
BACnet Protocol Revision: 135-2008 (1.6)

Product Description:

This product implements a DALI-BACnet gateway. It allows to map 4 DALI channels, that is, 4 x 64 DALI devices to BACnet objects. It provides Analog Output objects to control each DALI device as well as Analog Output objects to control DALI groups and channels. Further, Multi-State Output objects are used to map DALI scenes. Analog Input objects provide the feedback value for DALI devices, groups and channels as well as group and channel status information. Additional Analog Input objects and Binary Input objects provide lux level and occupancy information from DALI sensors. Loop objects provide constant light controller functionality. The device also implements BACnet Schedule, Calendar, Trend Log, and Notification Class objects. The product is equipped with a BACnet/IP and a BACnet MS/TP communication interface.

BACnet Standardized Device Profile (Annex L):

BACnet Advanced Application Controller (B-AAC)

BACnet Interoperability Building Blocks Supported (Annex K):

Data Sharing – ReadProperty-A (DS-RP-A)
Data Sharing – ReadProperty-B (DS-RP-B)
Data Sharing – ReadPropertyMultiple-A (DS-RPM-A)
Data Sharing – ReadPropertyMultiple-B (DS-RPM-B)
Data Sharing – WriteProperty-A (DS-WP-A)
Data Sharing – WriteProperty-B (DS-WP-B)
Data Sharing – WritePropertyMultiple-A (DS-WPM-A)
Data Sharing – WritePropertyMultiple-B (DS-WPM-B)
Data Sharing – COV-A (DS-COV-A)
Data Sharing – COV-B (DS-COV-B)
Data Sharing – COVP-A (DS-COVP-A)
Data Sharing – COVP-B (DS-COVP-B)
Alarm and Event – Notification Internal-B (AE-N-I-B)
Alarm and Event – ACK-B (AE-ACK-B)
Alarm and Event – Alarm Summary-B (AE-ASUM-B)
Alarm and Event – Alarm Enrollment Summary-B (AE-ESUM-B)
Alarm and Event – Alarm Information-B (AE-INFO-B)
Scheduling – Internal-B (SCHED-I-B)
Scheduling – External-B (SCHED-E-B)
Trending – Viewing and Modifying Trends Internal-B (T-VMT-I-B)
Trending – Viewing and Modifying Trends External-B (T-VMT-E-B)
Trending – Automated Trend Retrieval-B (T-ATR-B)
Device Management – DynamicDeviceBinding-A (DM-DDB-A)
Device Management – DynamicDeviceBinding-B (DM-DDB-B)
Device Management – DynamicObjectBinding-B (DM-DOB-B)
Device Management – TimeSynchronization-A (DM-TS-A)
Device Management – TimeSynchronization-B (DM-TS-B)
Device Management – UTCTimeSynchronization-A (DM-UTC-A)
Device Management – UTCTimeSynchronization-B (DM-UTC-B)
Device Management – DeviceCommunicationControl-B (DM-DCC-B)
Device Management – ReinitializeDevice-B (DM-RD-B)

Device Management – Backup and Restore (DM-BR-B)
Device Management – List Manipulation-B (DM-LM-B)
Network Management – Connection Establishment-A (NM-CE-A)

Segmentation Capability:

Segmented requests supported, window size: 16
Segmented responses supported, window size: 16

Standard Object Types Supported:**Device Object**

1. *Dynamically creatable using BACnet's CreateObject service?*

No.

2. *Dynamically deletable using BACnet's DeleteObject service?*

No.

3. *List of optional properties supported:*

Location, Description, Max_Segments_Accepted, APDU_Segment_Timeout, Max_Master¹, Max_Info_Frames¹, Active_COV_Subscriptions, Configuration_Files, Last_Restor_Time, Backup_Failure_Timeout, Local_Time, Local_Date, UTC_Offset, Daylight_Saving_Status, Time_Synchronization_Recipients, UTC_Time_Synchronization_Recipients, Time_Synchronization_Interval, Align_Intervals, Interval_Offset,

4. *List of all properties that are writable where not otherwise required by this standard:*

None.

5. *List of proprietary properties:*

None.

6. *List of any property value range restrictions:*

None.

Analog Input

1. *Dynamically creatable using BACnet's CreateObject service?*

No.

2. *Dynamically deletable using BACnet's DeleteObject service?*

No.

3. *List of optional properties supported:*

Description, Device_Type, Reliability, Resolution, Min_Pres_Value, Max_Pres_Value, COV_Increment, Time_Delay², Notification_Class², Low_Limit², High_Limit², Deadband², Limit_Enable², Event_Enable², Acked_Transitions², Notify_Type², Event_Time_Stamps², Profile_Name

4. *List of all properties that are writable where not otherwise required by this standard:*

Description

¹ If device is operated with BACnet MS/TP enabled.

² Only for objects mapping to DALI group and channel status and to DALI lux level sensors.

5. List of proprietary properties:

Device_Failure (529)	BIT STRING	R	Only present if the object maps to a DALI channel status. One bit for each ballast on the channel (64 bit). Bit is 1 if ballast reports a failure.
Ballast_Failure (530)	BIT STRING	R	Only present if the object maps to a DALI channel status. One bit for each ballast on the channel (64 bit). Bit is 1 if ballast reports a ballast failure.
Lamp_Failure (531)	BIT STRING	R	Only present if the object maps to a DALI channel status. One bit for each ballast on the channel (64 bit). Bit is 1 if ballast reports a lamp failure.
Battery_Failure (532)	BIT STRING	R	Only present if the object maps to a DALI channel status. One bit for each ballast on the channel (64 bit). Bit is 1 if ballast reports a battery failure (emergency lights only).
Function_Test_Failure (533)	BIT STRING	R	Only present if the object maps to a DALI channel status. One bit for each ballast on the channel (64 bit). Bit is 1 if ballast reports a function test failure (emergency lights only).
Duration_Test_Failure (534)	BIT STRING	R	Only present if the object maps to a DALI channel status. One bit for each ballast on the channel (64 bit). Bit is 1 if ballast reports a duration test failure (emergency lights only).

6. List of any property value range restrictions:

None.

Analog Output

1. Dynamically creatable using BACnet's CreateObject service?

No.

2. Dynamically deletable using BACnet's DeleteObject service?

No.

3. List of optional properties supported:

Description, Device_Type, Reliability, Resolution, Min_Pres_Value, Max_Pres_Value, COV_Increment, Time_Delay, Notification_Class, Low_Limit, High_Limit, Deadband, Limit_Enable, Event_Enable, Acked_Transitions, Notify_Type, Event_Time_Stamps, Profile_Name

4. List of all properties that are writable where not otherwise required by this standard:

Description, Max_Pres_Value³

5. List of proprietary properties:

Power_On_Level (512)	REAL	W	Present value of lighting outputs after power on of lighting output. Only present if the object maps to a DALI device.
System_Failure_Level (513)	REAL	W	Present value of lighting outputs if lighting outputs loose communication with L-DALI. Only present if the object maps to a DALI device.
Fade_Time (514)	Unsigned	W	Amount of time in milliseconds over which changes to the actual value of the lighting output shall occur ("fading"). Only present if the object maps to a DALI device.
Ramp_Rate (515)	REAL	W	Rate in percent per seconds at which changes to the actual value of the lighting output shall occur ("ramping"). Only present if the object maps to a DALI device.
Min_Level (516)	REAL	W	Minimum possible on-dim-level. Only present if the object maps to a DALI device.
Groups (517)	BIT STRING	W	Group membership information (16 bit, one bit per group). Only present if the object maps to a DALI device.

³ Only for objects mapping to a DALI device.

Nominal_Power (518)	REAL	W	Nominal power of the DALI ballast, 0 for auto detect. Only present if the object maps to a DALI device.
Burn_In_Time (519)	Unsigned	W	Lamp butn-in time. Only present if the object maps to a DALI channel.
Dim_Mode (520)	Unsigned	W	Either 0 for “fading” or 1 for “ramping”.
On_Delay_Time (521)	Unsigned	W	On delay time in seconds.
Off_Delay_Time (522)	Unsigned	W	Off delay time in seconds.
Warn_Delay (523)	Unsigned	W	Off-warning time in seconds.
Auto_Off_Time (524)	Unsigned	W	Auto-off time in seconds
Auto_Off_Mode (526)	Unsigned	W	“Disable break/restart” (0), “Enable break” (1), “Enable restart” (2), “Enable break/restart” (3)
Elapsed_Active_Time (527)	Unsigned	W	Accumulated time in seconds, which the corresponding DALI lamp was switched on. For groups or channels this gives the maximum time of all lamps in the group/channel. When writing 0 to this property the value is reset. For groups and channels the value for all lamps in the group/channel are reset.
Time_Of_Active_Time_Reset (528)	DateTime	R	Time and date the Elapsed_Active_Time was last reset.

6. List of any property value range restrictions:

Present_Value:	0 and Min_Level to Max_Pres_Value for objects mapping to a DALI device
Min_Level:	0.1 to Max_Pres_Value
Max_Pres_Value:	Min_Pres_Value to 100
Fade_Time:	0 to 90510 ms
Ramp_Rate:	2.795 to 357.796
Power_On_Level:	0 to 100 (or NaN for “mask”)
System_Failure_Level:	0 to 100 (or NaN for “mask”)
Dim_Mode:	0 or 1

Binary Input

1. Dynamically creatable using BACnet's CreateObject service?

No.

2. Dynamically deletable using BACnet's DeleteObject service?

No.

3. List of optional properties supported:

Description, Device_Type, Reliability, Polarity, Inactive_Text, Active_Text, Profile_Name

4. List of all properties that are writable where not otherwise required by this standard:

Description, Inactive_Text, Active_Text

5. List of proprietary properties:

Debounce (535)	Unsigned	W	Debouncing time in seconds.
Unoccupied_Delay (536)	Unsigned	W	Occupancy hold time in seconds.

6. List of any property value range restrictions:

None.

Accumulator

1. Dynamically creatable using BACnet's CreateObject service?

No.

2. Dynamically deletable using BACnet's DeleteObject service?

No.

3. List of optional properties supported:

Description, Device_Type, Reliability, Value_Change_Time, Value_Before_Change, Value_Set, Pulse_Rate, Time_Delay, Notification_Class, Low_Limit, High_Limit, Limit_Enable, Event_Enable, Acked_Transitions, Notify_Type, Event_Time_Stamps, Profile_Name

4. List of all properties that are writable where not otherwise required by this standard:

Description

5. List of proprietary properties:

Debounce (535)	Unsigned	W	Debouncing time in seconds.
Unoccupied_Delay (536)	Unsigned	W	Occupancy hold time in seconds.

6. List of any property value range restrictions:

None.

Loop

1. Dynamically creatable using BACnet's CreateObject service?

No.

2. Dynamically deletable using BACnet's DeleteObject service?

No.

3. List of optional properties supported:

Description, Reliability, Profile_Name

4. List of all properties that are writable where not otherwise required by this standard:

Description

5. List of proprietary properties:

Occupancy_V Variable_Reference (537)	ObjPropRef	W	Specifies the object and property used to set the Occupancy_Variable property (538) of the Loop object.
Occupancy_Variable (538)	Unsigned	W	Occupancy input for constant light controller. 0 for unoccupied, 1 for occupied.
Mode (539)	Unsigned	W	Constant light controller mode: "disabled" (0), "regulator" (1), "control" (2), "DALI" (3), "presence" (4), "regulator w/o occupancy" (5), "control w/o occupancy" (6), "manual on/auto off" (7)
Hold_Time (540)	Unsigned	W	Occupancy hold time in seconds.
Ignore_Time (541)	Unsigned	W	Occupancy ignore time after switching off in seconds.
Occupied_Level (542)	REAL	W	Output level in presence mode, occupied state.
Unoccupied_Level (543)	REAL	W	Output level in presence mode, unoccupied state.
Step_Value (544)	REAL	W	Step value for the constant light controller algorithm in percent.
On_Hysteresis (545)	REAL	W	Constant light controller algorithm hysteresis for switching lights on in percent.
Off_Hysteresis (546)	REAL	W	Constant light controller algorithm hysteresis for switching lights off in percent.
Off_Delay (547)	Unsigned	W	Constant light controller off delay in seconds.
On_Delay (548)	Unsigned	W	Constant light controller on delay in seconds.

6. List of any property value range restrictions:

None.

Multi-State Output

1. *Dynamically creatable using BACnet's CreateObject service?*
No.

2. *Dynamically deletable using BACnet's DeleteObject service?*
No.

3. *List of optional properties supported:*
Description, Device_Type, Reliability, State_Text, Profile_Name

4. *List of all properties that are writable where not otherwise required by this standard:*
Description, State_Text

5. *List of proprietary properties:*
None.

6. *List of any property value range restrictions:*
None.

Data Link Layer Options:

- BACnet IP, (Annex J)
- BACnet IP, (Annex J), Foreign Device
- ISO 8802-3, Ethernet (Clause 7)
- MS/TP master (Clause 9), baud rate(s): 9600, 19200, 38400
- MS/TP slave (Clause 9), baud rate(s):
- Point-To-Point, EIA 232 (Clause 10), baud rate(s):
- Point-To-Point, modem, (Clause 10), baud rate(s):
- LonTalk, (Clause 11), medium:

Device Address Binding:

Static device address binding not supported.

Networking Options:

- Router, Clause 6 - List all routing configurations, e.g., ARCNET-Ethernet, Ethernet-MS/TP, etc.
- Annex H, BACnet Tunneling Router over IP
- BACnet/IP Broadcast Management Device (BBMD)
- Registrations by Foreign Devices

Character Sets Supported:

Indicating support for multiple character sets does not imply that they can all be supported simultaneously.

- | | | |
|-------------------------------------------------------|-----------------------------------------------|------------------------------------------------|
| <input checked="" type="checkbox"/> ANSI X3.4 | <input type="checkbox"/> IBM™/Microsoft™ DBCS | <input checked="" type="checkbox"/> ISO 8859-1 |
| <input checked="" type="checkbox"/> ISO 10646 (UCS-2) | <input type="checkbox"/> ISO 10646 (UCS-4) | <input type="checkbox"/> JIS C 6226 |

If this product is a communication gateway, describe the non-BACnet equipment/network(s) that the gateway supports:

The L-DALI provides BACnet/DALI gateway functionality. DALI is a protocol defined in IEC 62386. Its main field of application is the lighting industry.

Additional Information and Contact:

Further Information, a detailed User Manual and firmware updates can be obtained from our website <http://www.loytec.com>.

For information and technical support please contact us at the following address:

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