

KNX

BACnet

MQTT

Modbus

Helvar

OPC  
(DA/UA)

SNMP

Fidelio/Opera | Protel | Infor  
RMS Cloud | CharPMS  
VingCard Web | Kaba | Salto

DALI EnOcean  
M-Bus DMX

Proprietary solutions

# All-in-one

**Building management software for  
medium-sized and enterprise building  
automation projects**



**NETx LaMPS**

Lighting/DALI management

Application specific  
protocol for lighting  
systems

Advanced features for  
lighting control

- Tests of lamps and ballasts
- Special functionality for emergency lighting

Pure field level protocol

- Mostly used in combination with system standards like KNX
- No standardized IP interface

KNX is the most common way to integrate DALI

Some KNX/DALI gateways have multiple channels

Up to 64 DALI devices can be connected to 1 channel

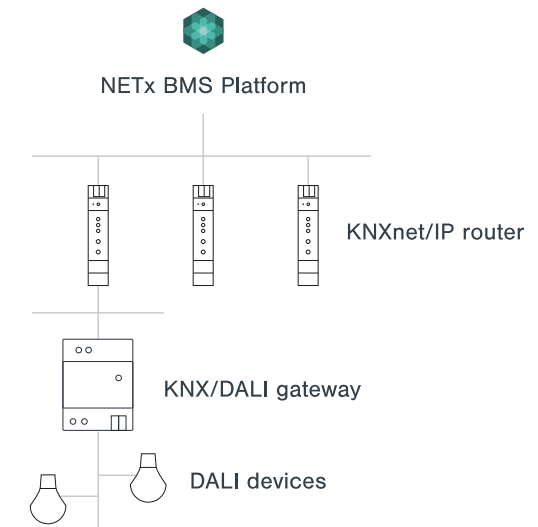
Using KNX, DALI can be connected to Building Management Systems (BMS)

Visualization, monitoring, maintenance of lighting control

DALI data and information are provided as KNX group objects

- Objects for lighting control (on/off, dimming, status, ...)
- Objects for maintenance (trigger tests, providing test results, ...)
- Objects for emergency lighting control (emergency status, emergency tests, ...)

KNX/DALI gateways are used to interconnect the DALI bus to KNX



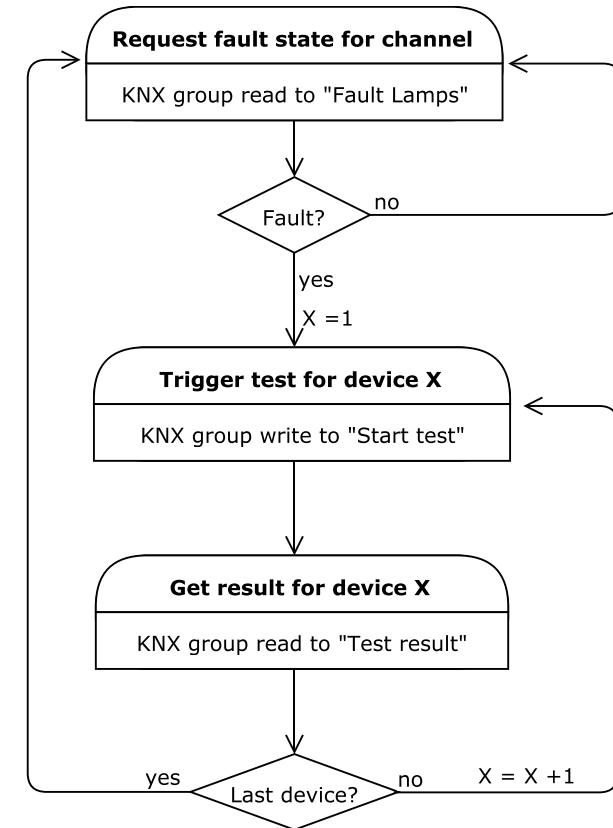
## KNX/DALI gateways: challenges - KNX group object mapping for DALI

High number of functions and high number of devices per gateway would result in a high number of KNX group objects at the gateway

To avoid this, only parts of the functionality are available for each DALI device

- Group objects per DALI device: on/off, dimming, status, ...
- Group object per channel: trigger function tests, test results, ...

Stateful communication is required to get all information per device, e.g. DALI tests

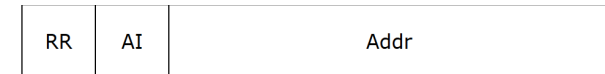
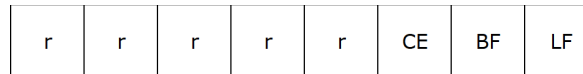


# KNX/DALI gateways: challenges - KNX data point types (DPTs) for DALI

Standard functions are available as standard DPTs (e.g. dimming)

Many KNX/DALI gateways use even non standardized DPTs

For enhanced functions like testing, complex DPTs are used, e.g. DPT\_DALI\_Control\_Gear\_Diagnostics



## KNX/DALI gateways: challenges - manufacturer-specific implementation

There are many different manufactures for KNX/DALI gateways

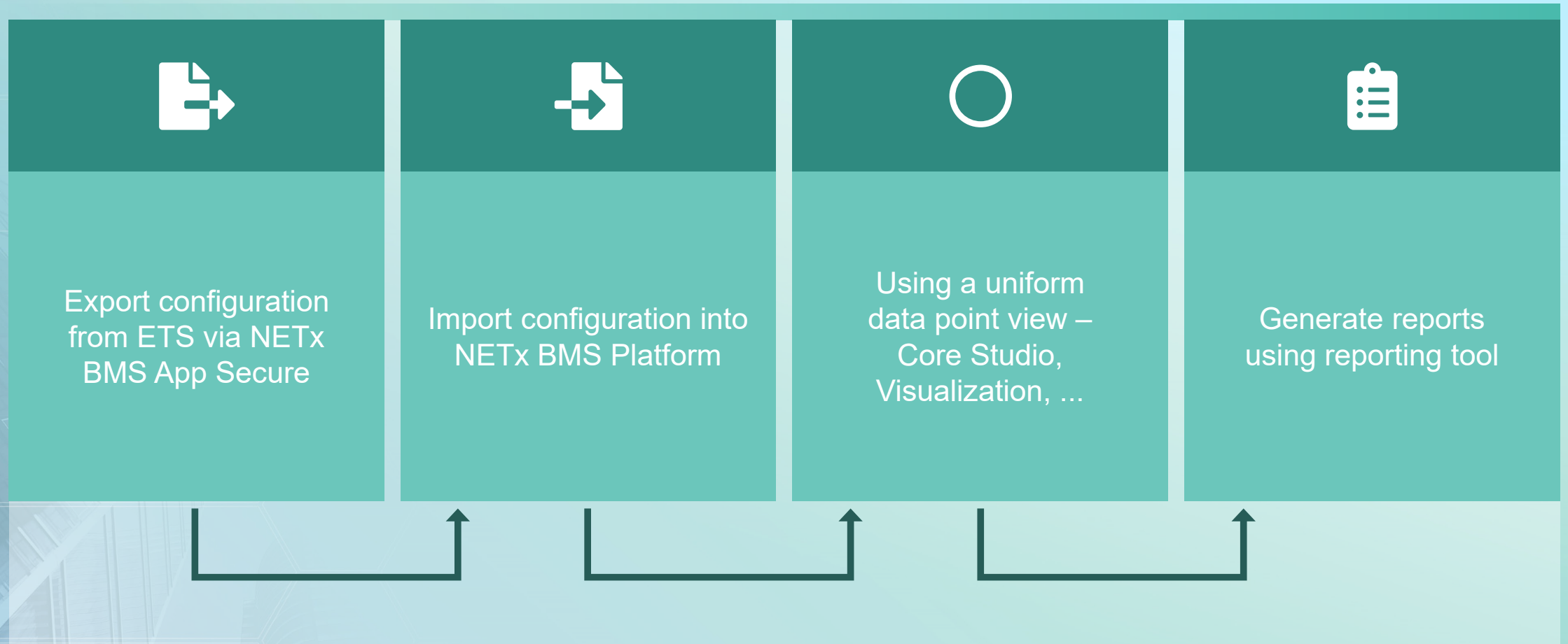
Only standard functionality is common to all DALI gateways (on/off, dimming, ...)

Advanced features like DALI testing are manufacturer-specific

- Manufacturer-specific non standardized DPTs
- Manufacturer-specific, stateful communication logics are required

Time-consuming and complex task for integrators and electrical engineers

Extension module for NETx BMS Platform	Provides manufacturer-independent view of KNX/DALI gateways		Uniform data point view
Triggering DALI tests	Show common DALI errors and error for each device separately	Support for DALI emergency tests	Stores test results in SQL database
Reporting tool for generating customized reports	Automatic export from ETS using NETx BMS App Secure	Support for multiple KNX/DALI gateways: ABB, Gira, Hager, IPAS, Jung, MDT, Schneider, Siemens, Zennio, EAE, ...	





# LaMPS Module: uniform data point view

Item Tree X

Item	Description	Value
NETx		
XIO		
Cluster		
Module		
MaRS		
LaMPS		
DALI		
BuildingA		
Floor1		
My DALI Gateway		
Fault General	Fault General	True
Fault DALI	Fault DALI (4 22)	False
Fault Device	Fault Device (5 23)	True
Fault Lamps	Fault Lamps (6 24)	False
Trigger Test	Trigger Test	
Test Running	Test Running	False
Device1		
Fault	Displays if any fault occurred	True
Fault Lamp	Fault Lamp	False
Fault Device	Fault Device	True
OnOff		True
Device2		
Fault	Displays if any fault occurred	True
Fault Lamp	Fault Lamp	False
Fault Device	Fault Device	True
OnOff		False

# LaMPS Module: uniform data point view

The screenshot displays a software interface for managing KNX data points. It is divided into three main sections:

- Item Tree (Left):** A hierarchical tree structure showing the organization of data points. The tree includes levels for 'Server', 'KNX', 'Functions', 'Floor1', 'Cor1', and '1.1.6 KNX DALI-Gateway'.
- Table (Center):** A table listing individual data points with their descriptions and current values. The selected item, '1.1.6 KNX DALI-Gateway', is highlighted in blue.
- Properties (Right):** A detailed view of the selected gateway's properties, including name, data type, quality, timestamp, and various status indicators.

Item	Description	Value
Trigger Test	Trigger Test	
Number Faulty Devices	Number Faulty Devices	1
Emergency		
Functions		
Floor1		
KNX IP Connection	KNX IP Connection	True
Fault	True if any fault occurred	True
Test faulty devices only	Test faulty devices only	False
Trigger Test	Trigger Test	
Number Faulty Devices	Number Faulty Devices	1
Emergency		
Functions		
Cor1		
KNX IP Connection	KNX IP Connection	True
Fault	True if any fault occurred	True
Test faulty devices only	Test faulty devices only	False
Trigger Test	Trigger Test	
Number Faulty Devices	Number Faulty Devices	1
Emergency		
Functions		
1.1.6 KNX DALI-Gateway		
KNX IP Connection	KNX IP Connection	True
Fault	True if any fault occurred	True
Fault Devices	Fault Devices (1524)	True
Fault Lamp	Fault Lamp	True
Fault Ballast	Fault Ballast	False
Fault Converter	Fault Converter	False
Test faulty devices only	Test faulty devices only	False
Trigger Test	Trigger Test	
Test Running	Test Running	False
Number Faulty Devices	Number Faulty Devices	1
Faulty devices		2
Fault Power Failure	Fault Power Failure (1525)	False
Fault Short Circuit	Fault Short Circuit (1527)	False
Emergency		
Functions		
Device1		
Name		Device1
Fault	True if any fault occurred	False
Fault Lamp	Fault Lamp	False
Fault Ballast	Fault Ballast	False

Name	ID	Value
1.1.6 KNX DALI-Gateway		
NETx\Module\LaMPS\DALI\Building\Floor1\Cor1\1.1.6 KNX DALI-Gateway		
Name	5101	1.1.6 KNX DALI-Gateway
StructureType	1012	
Delimiter	5106	\
Type	5200	17
Status	5201	2
Template	6999	

# Interface

Gateway - xxxxxxxxxxxx

**Faults**

All (?) Devices Lamps Ballasts

Number of fault devices: 5  
Faulty devices: 1, 3, 5, 6, 22

Test running

Device 1 - Ceiling light

Serial: 48732g5759  
Location: Floor 1  
Device type: LED

Test Lamp Ballast Converter

Device 1 - Ceiling light

Test running

Funktion - last test: 20.2.2023 ✓

Battery - last test: 20.2.2023 Level - 78% ✗

Duration - last test: 20.2.2023 ?

Device 1 - Ceiling light

Test running

Funktion - last test: 20.2.2023 ✓

Battery - last test: 20.2.2023 Level - 78% ✗

Duration - last test: 20.2.2023 ?

Device 1 - Ceiling light

Test running

Funktion - last test: 20.2.2023 ?

Battery - last test: 20.2.2023 Level - 78% ?

Duration - last test: 20.2.2023 ?

Device 1 - Ceiling light

Serial: 48732g5759  
Location: Floor 1  
Device type: LED

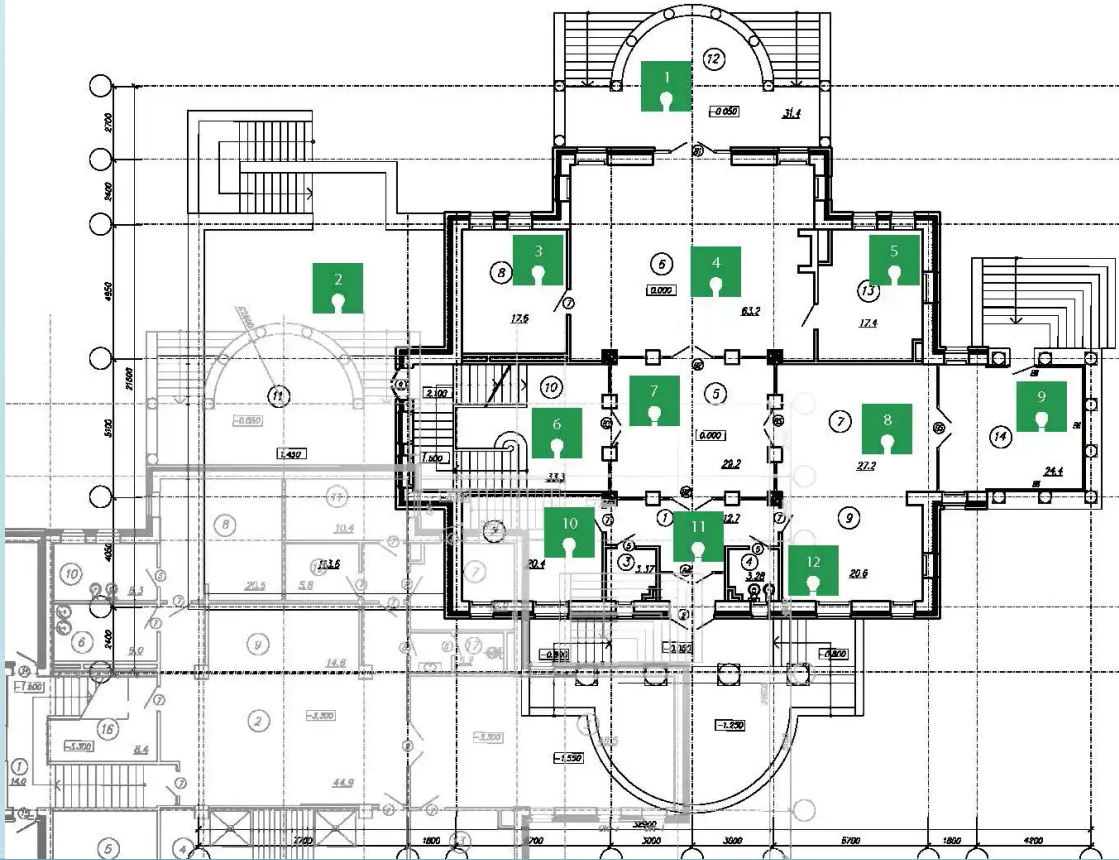
Operating hours

Current	Threshold
5h	5h

Test OK Test Error Test Unknown

Test started - running

Test started - not running



Gateway - xxxxxxxxxxxx

Faults

All (?)	Devices	Lamps	Ballasts
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No faults.

Test running ▶ ◻

Gateway - xxxxxxxxxxxx

**Faults**

All (?)	Devices	Lamps	Ballasts
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Number of fault lamps: 3  
Faulty lamps: 1, 4, 12

Test running

Device 1 - Ceiling light  
Serial: 48732g5759  
Location: Floor 1  
Device type: LED

Test	Lamp	Ballast	Converter
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Gateway - xxxxxxxxxxxx

**Faults**

All (?)	Devices	Lamps	Ballasts
---------	---------	-------	----------

Number of fault lamps: 3  
Faulty lamps: 1, 4, 12

Test running

Device 1 - Ceiling light

Serial: 48732g5759  
Location: Floor 1  
Device type: LED

Test	Lamp	Ballast	Converter
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[www.netxautomation.com](http://www.netxautomation.com)