

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

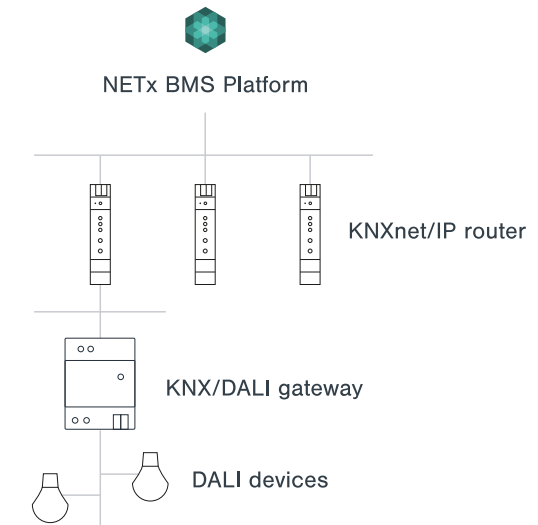
Using KNX, DALI can be connected to Building Management Systems (BMS)

- Visualization, monitoring, maintenance of lighting control

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

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, ...)



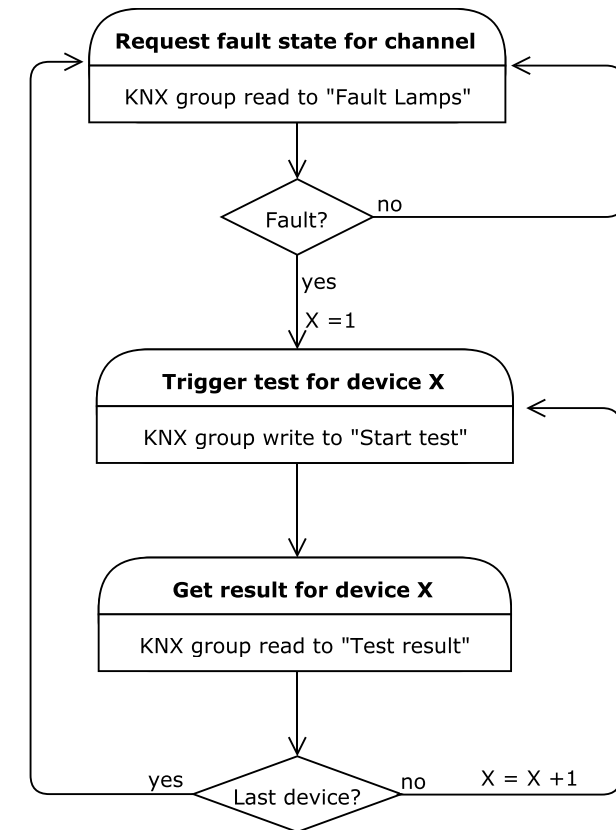
KNX/DALI gateways: challenges - KNX group object mapping for DALI

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)

For enhanced functions like testing, complex DPTs are used, e.g. DPT_DALI_Control_Gear_Diagnostics

r	r	r	r	r	CE	BF	LF
---	---	---	---	---	----	----	----

RR	AI	Addr
----	----	------

Many KNX/DALI gateways use even non standardized DPTs

KNX/DALI gateways: challenges - manufacturer-specific implementation

There are many different manufactures
for KNX/DALI gateways

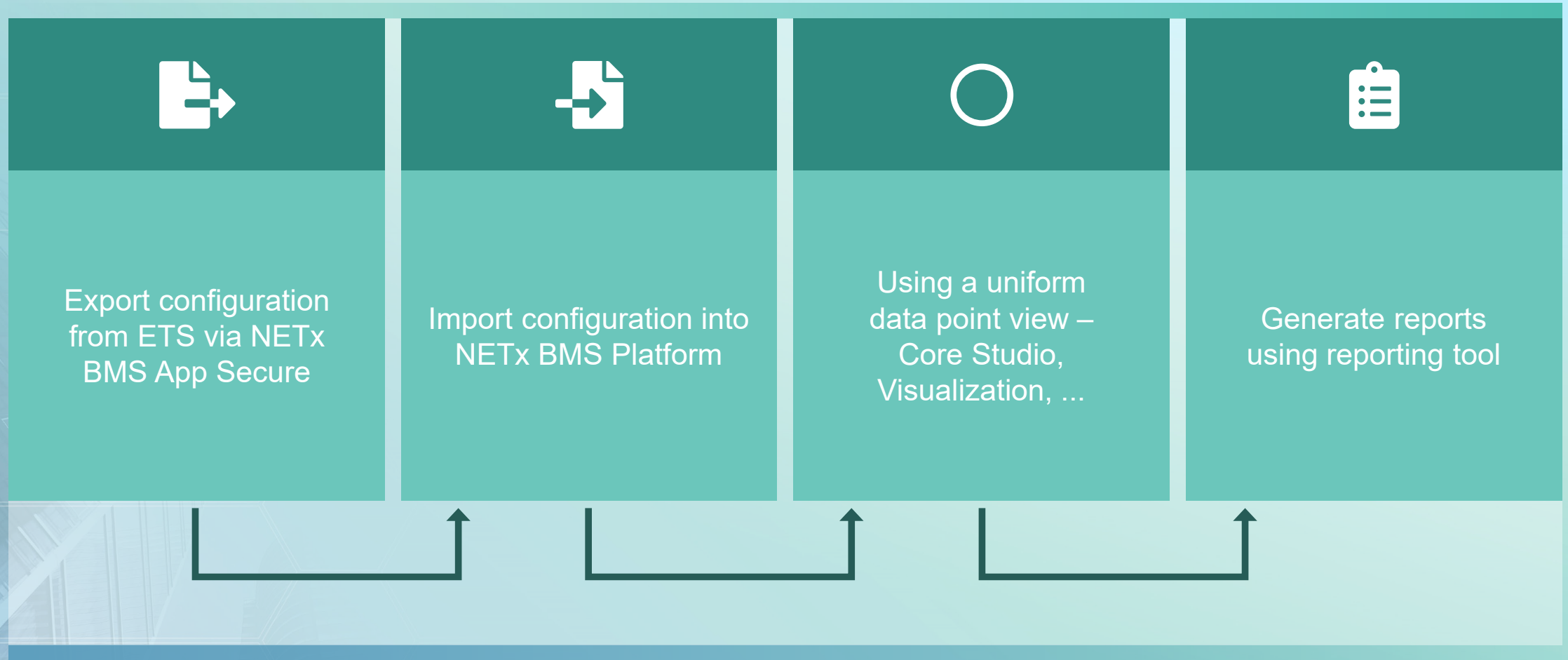
Only standard functionality is common to all
DALI gateways (on/off, dimming, ...)

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		
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

gateways

Server

KNX

ON (04.04.2023 17:02:08) BROADCAST

ON (04.04.2023 17:02:08) KNX IP Interface

Item Tree

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

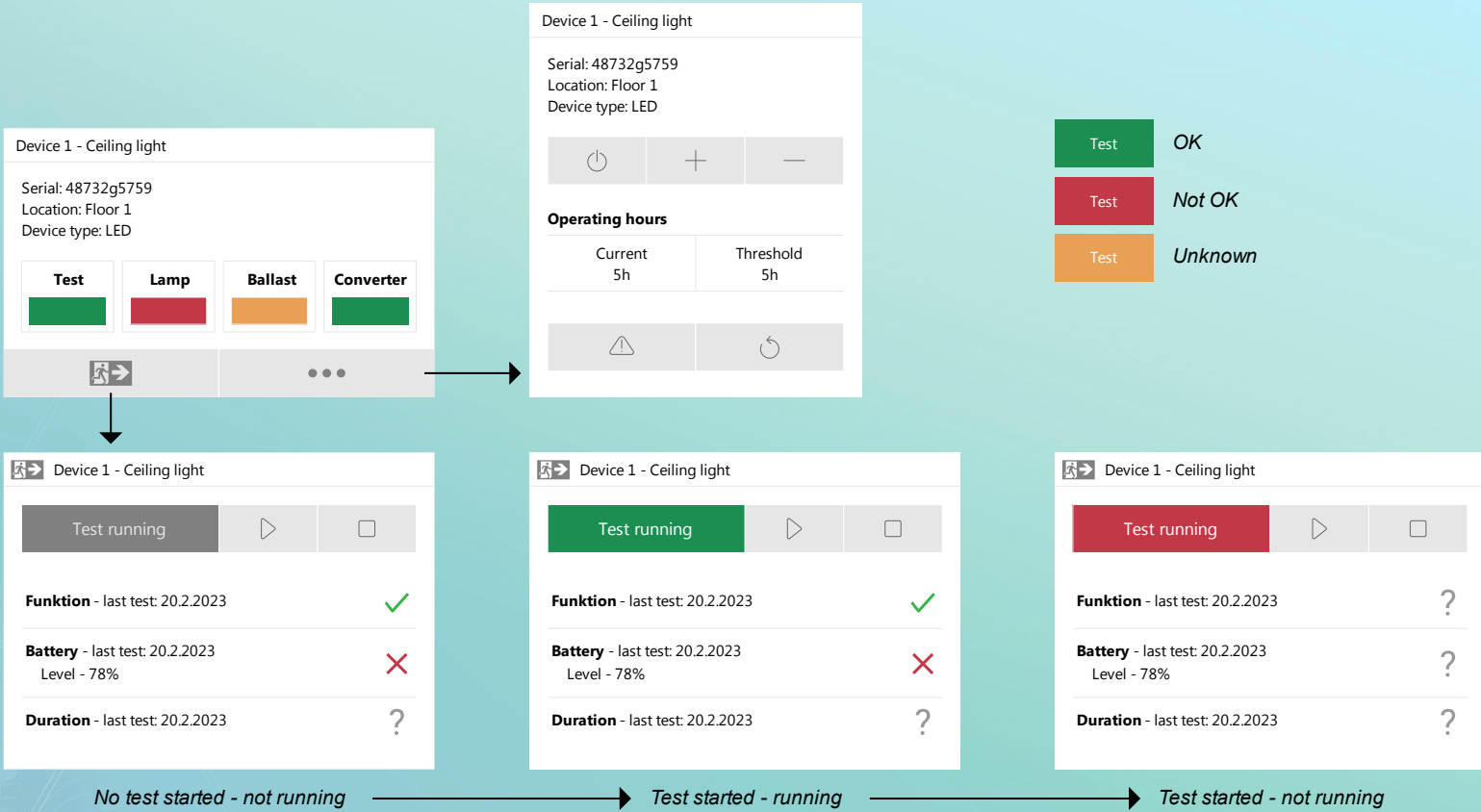
Properties

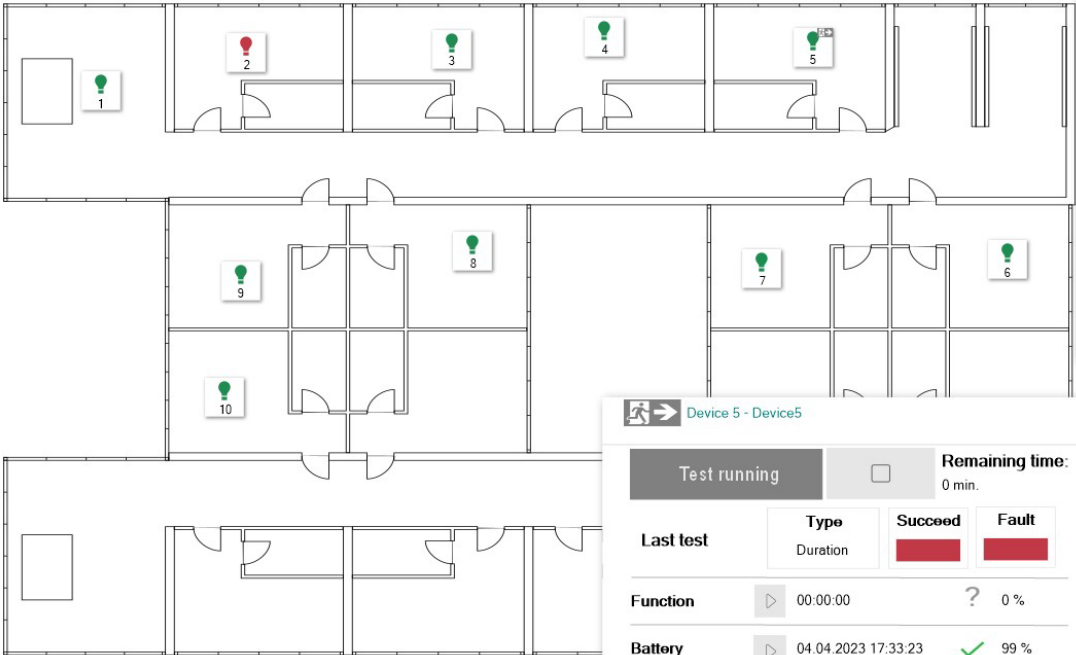
1.1.6 KNX DALI-Gateway

NETx\Module\LaMPS\DALI\Building\Floor1\Cor1\1.1.6 KNX DALI-Gateway

Name	ID	Value
DataType	1	BSTR
Value	2	1.1.6 KNX DALI-Gateway
Quality	3	GOOD
Timestamp	4	04.04.2023 15:02:06
AccessRights	5	READ
ScanRate	6	10
Unit	100	
Description	101	
Shortcut	111	
LocalTimestamp	400	04.04.2023 17:02:06
TimeElapsed	401	1671
Handle	1000	777
AccessLevel	1001	0
Persistent	1002	False
IsValueSet	1003	True
Redundant	1004	False
Source	1005	
OriginalItemID	1010	NETx\Module\LaMPS\DALI\Building\Floor1\Cor1\1.1.6 ..
StructureType	1012	
Name	5101	1.1.6 KNX DALI-Gateway
Delimiter	5106	\
Type	5200	17
Status	5201	2
Template	6999	

Telegrams Properties





Gateway - 1.1.6 KNX DALI-Gateway

KNX IP Connection		Fault	
<div></div>		<div></div>	
Devices	Lamp	Ballast	Converter
<div></div>	<div></div>	<div></div>	<div></div>

Number of fault devices: 1
Faulty devices: 2
Last test: 04.04.2023 17:02:38

Test running ▶

Device 5 - Device5

Test running ☐ Remaining time: 0 min.

Last test	Type	Succeed	Fault
Function	▶ 00:00:00	<div></div>	<div></div>
Battery	▶ 04.04.2023 17:33:23	<div></div> 99 %	
Duration	▶ 04.04.2023 17:33:42	<div></div> 0 min.	
Partial Duration	▶ 00:00:00	<div></div> 0 %	

Device 5 - Device5

Comment:
Location: Building\Floor1\Cor1

Last test	Lamp	Ballast	Converter
<div></div>	<div></div>	<div></div>	<div></div>

▶ ⋮

www.netxautomation.com