LOYTEC Products and Solutions

Luke Baar
BDM - Distribution
September 10th, 2026

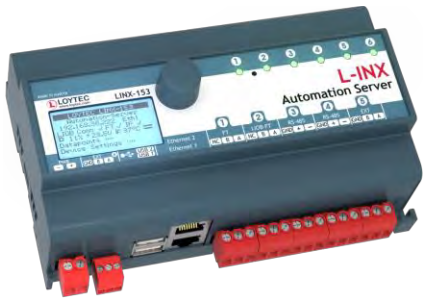
Agenda

- Company Overview
- Connectivity and Integration
- Lighting
- Room Control
- Visualization

LOYTEC Story

1999 — Founded in Austria

- Protocol Analyzer
- Comprehensive HVAC Automation Portfolio
- IP based Integration Platform



Continuous Innovation

2003 — LOYTEC in America

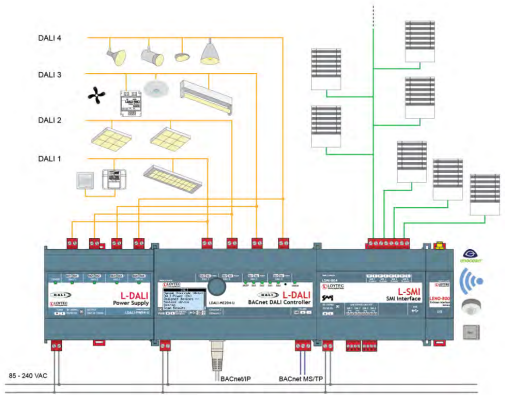
Combining Competences

- Full Blown Building Management Software
- Standalone Room Control
- Design-grade Room Operator Panels

2016 — LOYTEC joins Delta Electronics

Integrating Technologies

- Intelligent DALI-2 Lighting Controls
- Cellular connectivity
- Edge Intelligence with Node.js



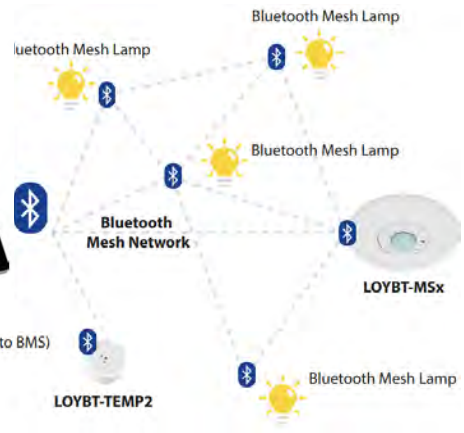
2020 — Knowledge Online Campus

Creating Solutions

- State-of-the-art Room Touch Controllers
- Wireless Solutions
- Application Controls

2025 — Solution Hub Team

- BLE SIG Mesh
- SPE-Ethernet Converter
- Tightening Cybersecurity



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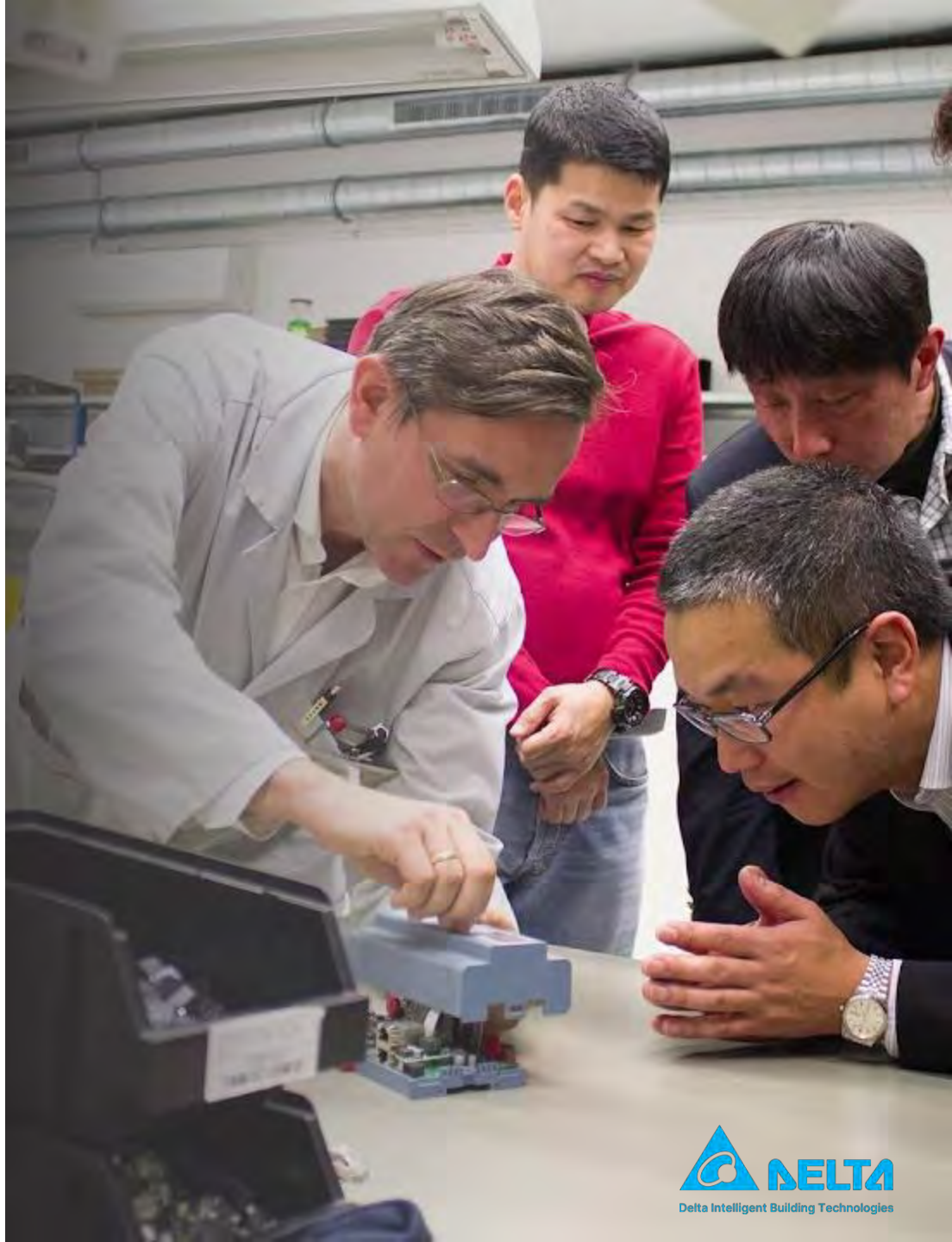
Our Strengths

- **Quality**
  In-house European engineering & production
- **Innovation**
  Over 30% of employees are in R&D; several with PhD
- **Integration**
  20+ open protocols supported in one platform
- **Presence**
  80+ countries with LOYTEC installations



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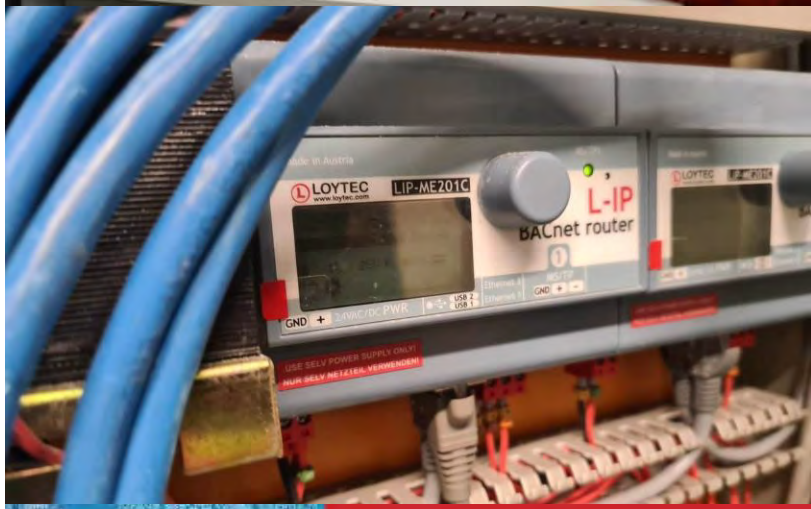
Unique Value Proposition

- **Edge Intelligence**
  Powerful controllers with local intelligence – web server and gateway functionality embedded
- **Technology that Enables Flexible Modernization**
  Standalone controllers and wireless solutions that enable uninterrupted operations, investment over time and effective and safe budget's management
- **Engineering Flexibility**
  Use LOYTEC libraries or create your own; develop with Node.js
- **Total Cost Transparency**
  No subscription costs, support is free of charge



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Connectivity and Integration

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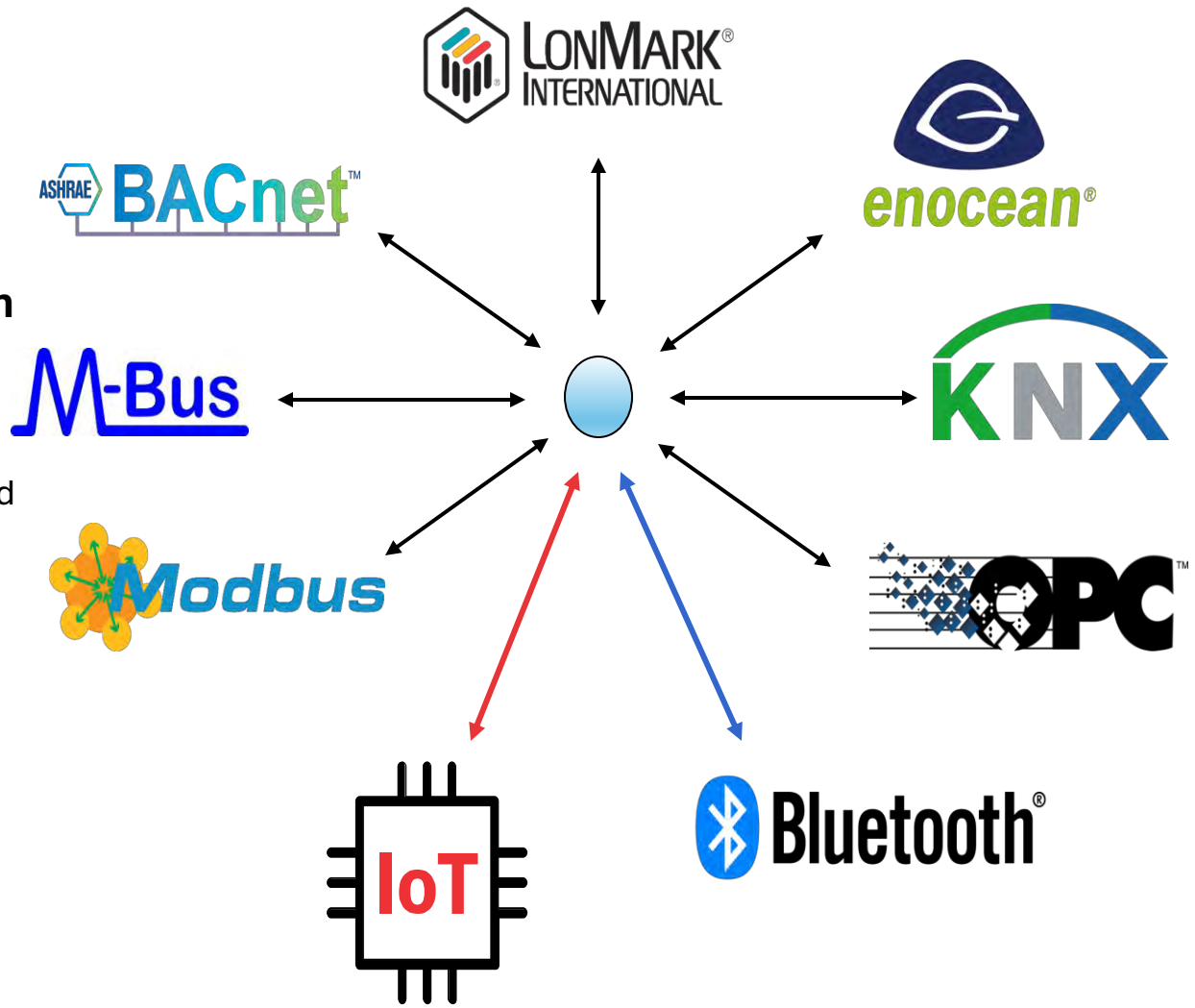
Connectivity
Solution Overview

Objectives

- **LOYTEC: The Protocol Expert of Building Automation**
  We speak every major protocol and integrate the most complex building systems.
- **Gateways That Bridge the Gaps**
  Our L-GATE, L-IP, L-INX, and SPE series connect diverse protocols and legacy systems to modern IP-based infrastructures.
- **Security & Control from Edge to Cloud**
  Integrated VPN, firewall and TLS encryption to ensure secure data transfer and network availability.
- **Smart Auto-Connect™ & IoT Ready**
  Automatic protocol mapping, cloud integration, AI-based analytics, and forecast control (weather, scheduling, and more).
- **LOYTEC Ensures You Own Your Data**
  Control your system, own your infrastructure, and keep your data secure – No vendor lock-in.



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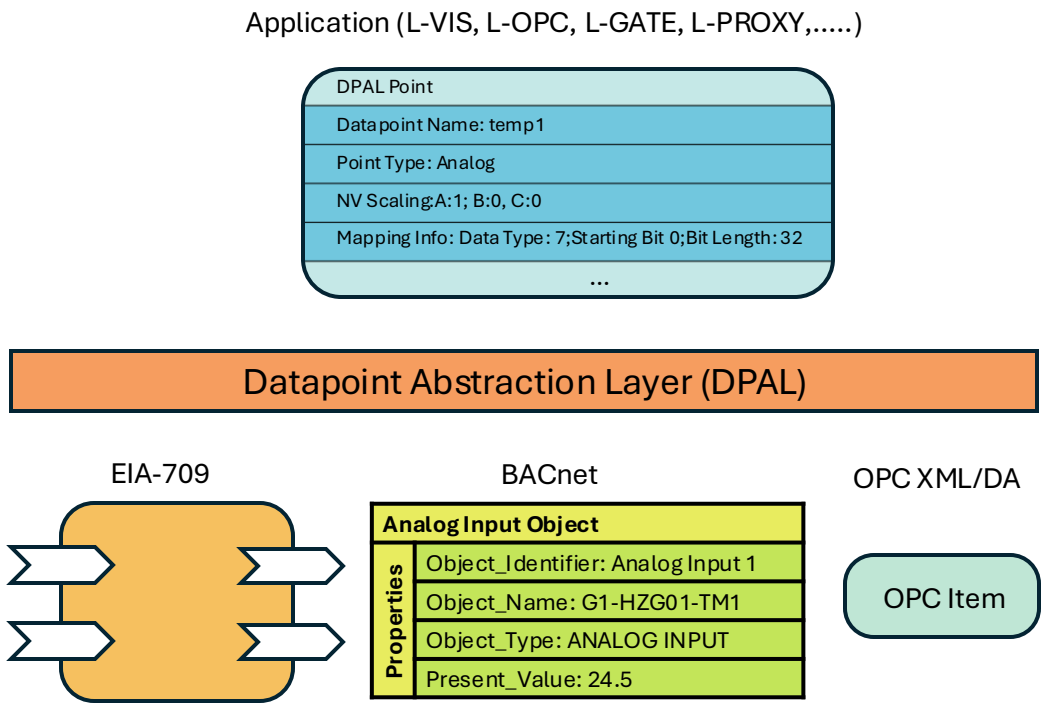
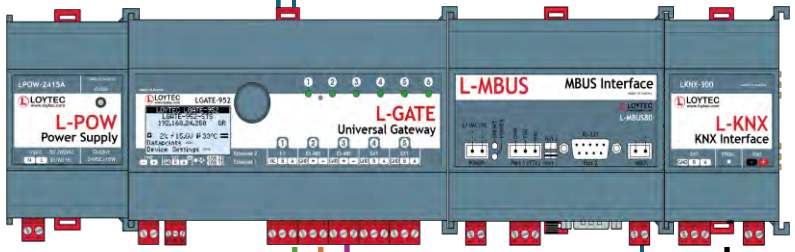
Connectivity
Datapoint Abstraction Layer

- Data Point representation independent from network technology
- Abstraction from technology dependent properties to technology independent
- Advantages:
  - Applications that access the data points are independent from the underlying network technology
  - Create connections on abstracted DPAL layer
  - Efficient implementation of gateway solutions

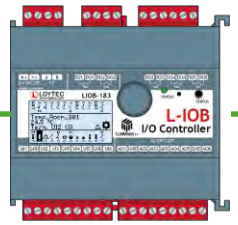


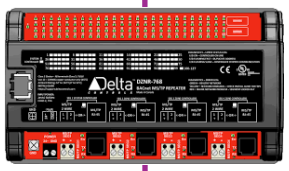
Connectivity
Architecture

IP (BACnet SC, BACnet OPC-UA, OPC DA, Modbus TCP, MQTT, UDMI, OCPP,...)



LON FT





KNX TP

BACnet MSTP

Modbus RTU

MBUS

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Connectivity
Gateways

Specifications			
Type	**LGATE-952**		
Interfaces	2 x Ethernet (100Base-T): OPC XML-DA, OPC UA, LonMark IP-852*, BACnet/IP**, KNXnet/IP, Modbus TCP (Master or Slave), HTTP, FTP, SSH, HTTPS, Firewall, VNC, SNMP 1 x TP/FT-10* (LonMark System) 2 x USB-A: WLAN (needs LWLAN-800), EnOcean (needs LENO-80x), SMI (needs LSMI-804), MP-Bus (needs LMPBUS-804), LTE (needs LTE-800), 2 x RS-485 (ANSI TIA/EIA-485): BACnet MS/TP** or Modbus RTU/ASCII (Master or Slave) 3 x EXT: M-Bus, Master EN 13757-3 (needs L-MBUS20/80) or KNX TP1 (needs LKNX-300) or SMI (needs LSMI-800) ** Either LonMark IP-852 or TP/FT-10 (no router)* ***Either BACnet/IP or 1x MS/TP on port 2 (no router)*		
Tools	L-INX Configurator		
Remote Network Interface	1 RNI with 2 MNI devices		
Resource limits			
Total number of data points	30 000	LonMark Schedulers	100
OPC data points	5 000	LonMark Alarm Servers	1
BACnet objects	2 000 (analog, binary, multi-state)	E-mail templates	100
BACnet client mappings	1 000	Math objects	100
BACnet calendar objects	25	Alarm logs	10
BACnet scheduler objects	100 (64 data points per object)	M-Bus data points	1 000
BACnet notification classes	32	Modbus data points	2 000
Trend logs (BACnet or generic)	512 (13 000 000 entries, ≈ 200 MB)	KNX TP1 data points	1 000
Total trended data points	2 000	KNXnet/IP data points	1 000
CEA-709 network variables (NVs)	2 000	Connections (Local / Global)	2 000 / 250
CEA-709 Alias NVs	2 000	Number of L-WEB clients	32 (simultaneously)
CEA-709 External NVs (polling)	2 000	Number of EnOcean devices	100
CEA-709 address table entries	1 000 (non-ECS mode: 15)	EnOcean data points	1 000
LonMark Calendars	1 (25 calendar patterns)	SMI devices (per channel)	16

Product name	Gateways					
Model	LGATE-952	LGATE-902	LINX-102	LINX-103	LINX-202	LINX-203
						
BACnet device profile	B-BC	B-BC	-	-	B-BC	B-BC
Power supply	24 VDC / 24 VAC ± 10%, typ. 2.5 W					
CPU	Quad-core ARM Cortex-A53 @ 1.1GHz					
RAM/FLASH	1 GB / 8 GB	1 GB / 8 GB	1 GB / 8 GB	1 GB / 8 GB	1 GB / 8 GB	1 GB / 8 GB
LIOB-Connect	-	-	■	■	■	■
TP / FT-10 ports	1	1	1	1	-	-
RS-485 ports	2	1	1	1	2	2
Extension ports	3	1	1	1	1	1
Total number of data points	30000	10000	10000	10000	10000	10000
OPC data points	5000	2000	2000	2000	2000	2000
BACnet objects	2000	2000	-	-	750	750
BACnet client mappings	1000	750	-	-	750	750
BACnet calendar	25	25	-	-	25	25
BACnet scheduler	100	100	-	-	100	100
BACnet notification classes	32	32	-	-	32	32
Trend logs	512 (13000000 entries, ≈ 200 MB)	256 (13 000 000 entries, ≈ 200 MB)				
LonMark calendar	1 (25 calendar patterns)	1 (25 calendar patterns)	1 (25 calendar patterns)	1 (25 calendar patterns)	-	-
LonMark scheduler	100	100	100	100	-	-
LonMark alarm servers	1	1	1	1	-	-
L-WEB clients	32	32	32	32	32	32
L-IOB I/O modules	-	-	Up to 8 (LIOB-Connect, LIOB-FT and LIOB-IP852)		Up to 8 (LIOB-Connect, LIOB-FT and LIOB-55x)	

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Connectivity
Router Series

Product name	L-IP CEA-709 / IP-852 Router					L-IP BACnet IP Router		
Model	LIP-3ECTC	LIP-1ECTC	LIP-13ECTC	LIP-33ECTC	LIP-3333ECTC	LIP-ME201C	LIP-ME202C	LIP-ME204C
								
Power supply	24 V AC / DC ±10%							
CPU	Quad-core ARM Cortex-A53 @ 1.1GHz							
RAM/FLASH	1 GB / 8 GB							
OPC XML-DA server	■	■	■	■	■	■	■	■
OPC UA server	■	■	■	■	■	■	■	■
Ethernet ports	2	2	2	2	2	2	2	2
TP / FT-10 ports	1	-	1	2	4	-	-	-
TP / XF-1250 ports	-	1	1	-	-	-	-	-
BACnet MS / TP ports	-	-	-	-	-	1	2	4
Operating conditions	0 °C to 50 °C, 10 – 90 % RH, noncondensing, degree of protection: IP40, IP20 (terminals)							
Dimensions (L x W x H, mm)	107 x 100 x 60				159 x 100 x 75	107 x 100 x 75		159 x 100 x 75
Certificates	CE, FCC, UL	CE, FCC, UL	CE, FCC, UL	CE, FCC, UL	CE, FCC, UL	CE, FCC,BTL, UL	CE, FCC, BTL, UL	CE, FCC, UL
USB ports	2	2	2	2	2	2	2	2
WLAN	■ [1]	■ [1]	■ [1]	■ [1]	■ [1]	■ [1]	■ [1]	■ [1]
LTE	■ [1]	■ [1]	■ [1]	■ [1]	■ [1]	■ [1]	■ [1]	■ [1]

Lighting Control

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Wired Lighting Control
Solution Overview

Objectives

- All L-DALI Controllers DALI-2 certified
- Integration of DiiA vendor database
- Integrated Web Server
- Predefined BACnet Interface
  -> Easy BMS Integration
- 1, 2 and 4 channel version available
- Up to 256 ballasts plus a wide range of DALI-2 certified field devices
- Integrated DALI bus power supply

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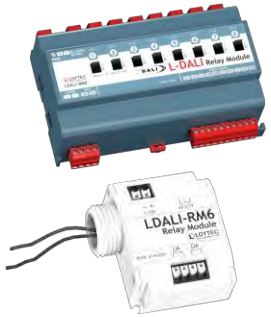
Wired Lighting Control
Functional Layers

DALI-2 Control

DALI-2 Equipment and Sensing

Multisensors
LDALI-MSx
Temp, RH, Presence, lux, 3 DI



Relay Modules
LDALI-RMx
Switching, 1-10V dimming (RM6)

Sunblind Module
LOY-DALI-SBM1
Conventional motors UP/DOWN via relay

Pushbutton coupler
LDALI-BM2
4 DI for light push buttons and switches

Light fixtures

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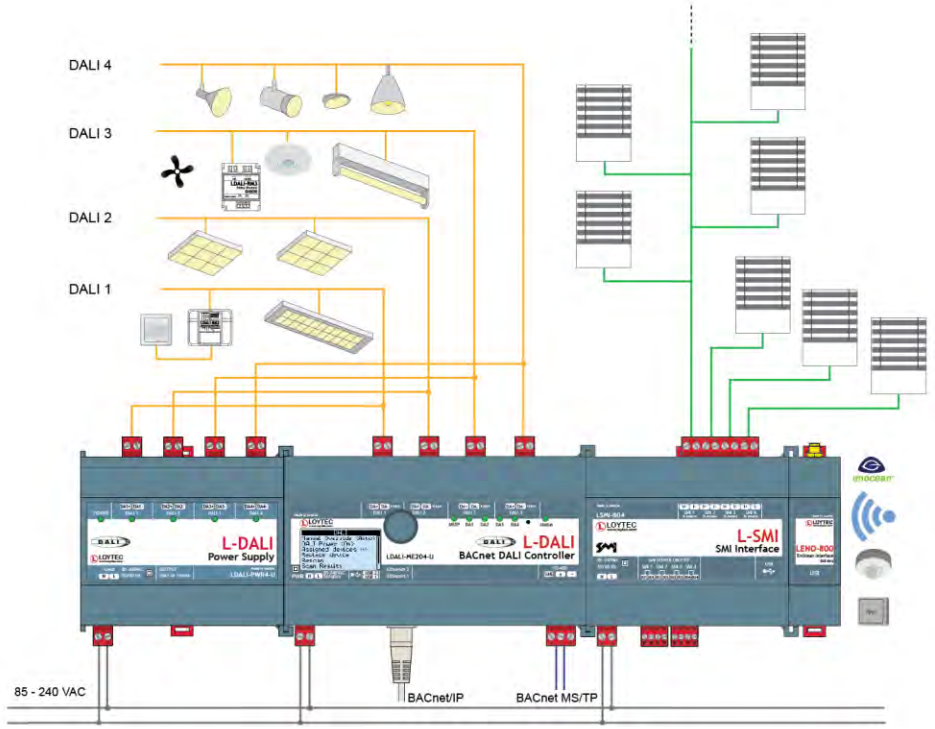
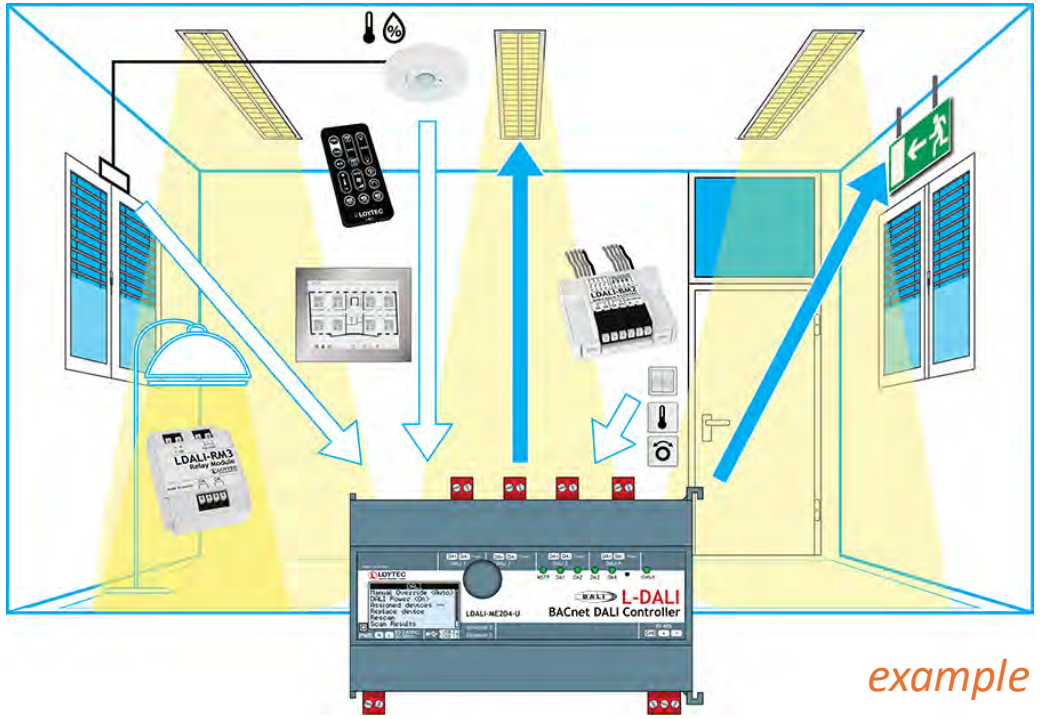
Wired Lighting Control
Architecture and Room View





example

- DALI-2 communication between controller, light fixtures and sensors/actors
- Additional integrated sunblind controller. Integrate SMI and Enocean via optional extension modules
- Seamlessly integrates to BMS via BACnet IP

- Occupancy Sensor for presence-driven lighting control
- High quality of visual comfort with tunable white fixtures
- Touch panel with customizable graphics for high quality of comfort over indoor conditions
- Sophisticated control algorithms significantly reduce energy usage and increase occupants' comfort

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Power Pack Solution
Solution Overview

Objectives

- Integrates the Bluetooth Mesh ecosystem
- Integration of certain LDALI devices
- Light Zone Orientation
  - Area Controlled by a Single Algorithm
  - Individual and Versatile
  - Configurable via THYRA App
- Networked Lighting Zones
  - Gateway to Building management system
  - Central Controller features
- Load-Control with LOY-DALI-RM20A

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Power Pack Solution
Functional Layers

Bluetooth® SIG Mesh

Control

Zone Controller
LOYBT-PP20A

Input touch panel
LDALI-TOUCH-L1

Touch Panel
LPAD-7

Momentary switch

Equipment and Sensing

Occupancy Sensor
LOY-DALI-MS2
Temp, RH,
Presence

Relay Module
LOY-DALI-RM20A

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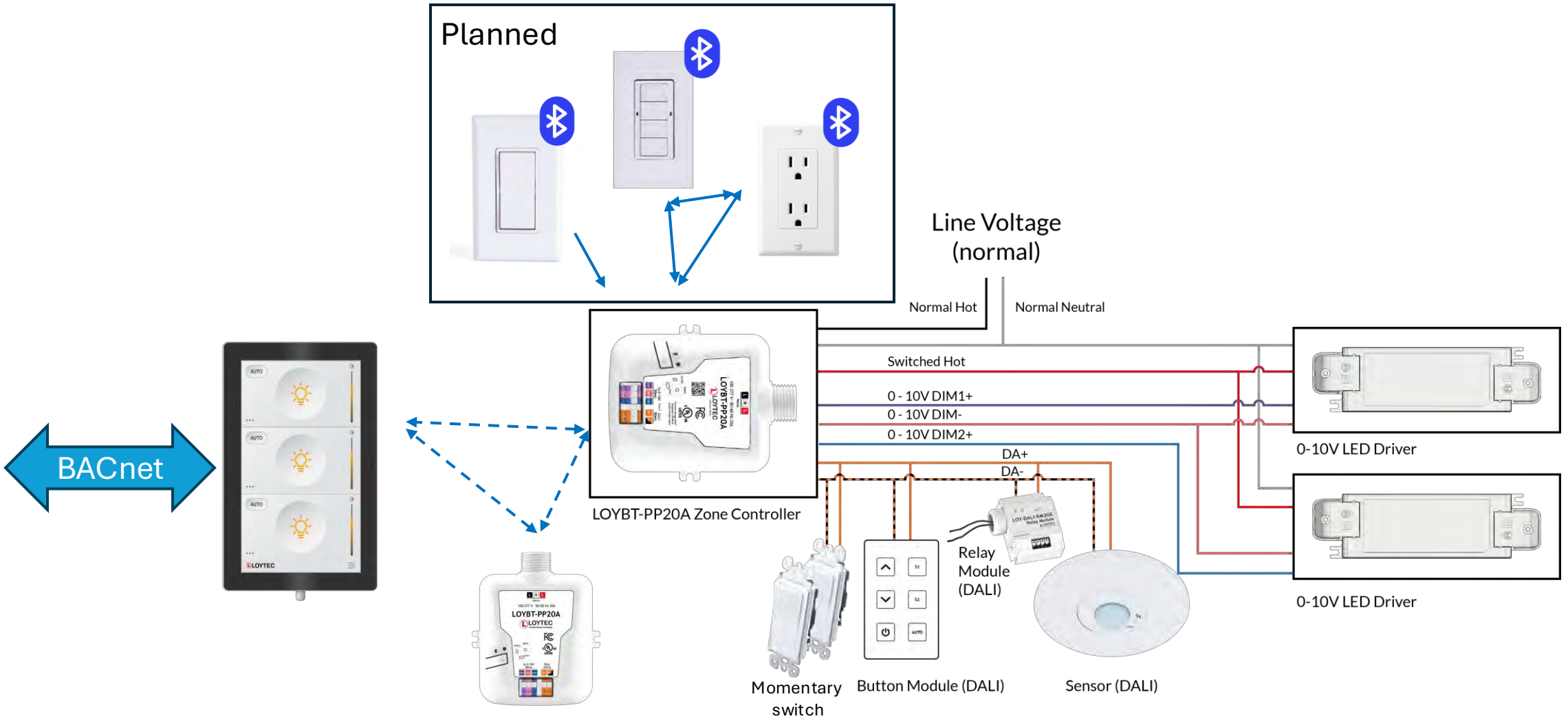
Power Pack Solution
Solution Overview

Bluetooth® SIG Mesh



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Room Control

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Wireless Room Control
Solution Overview

Solution benefits

- Based on Bluetooth SIG Mesh digital control technology
- Ease of commissioning and configuration with THYRA app
- Built-in encryption and authentication mechanisms
- Cable-free communication
- Flexible and scalable
- Easy to install

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Wireless Room Control
Functional Layers

Bluetooth® SIG Mesh

Control

Touch Panel
LPAD-7

Equipment and Sensing

Occupancy Sensor
LOYBT-MSx
Temp, RH,
Presence

Thermostate Valve
LOYBT-RT1

Sunblind control
LOYBT-SBM1

IO control
LOYBT-IO2

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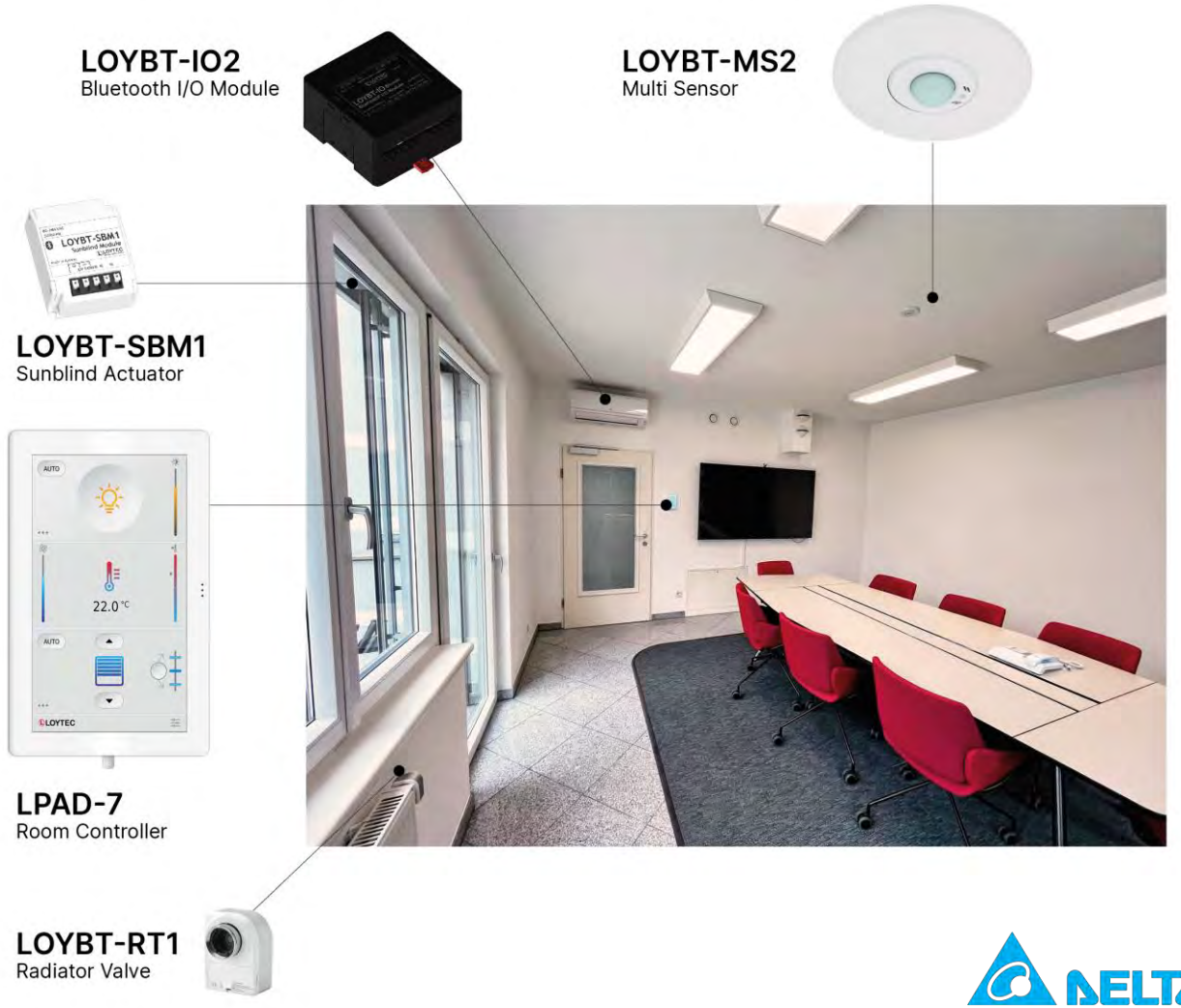
Wireless Room Control
Architecture and Room View

Bluetooth® SIG Mesh

Living Room



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Visualization

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Touch Panels
Solution Overview

Objectives

- High resolution IPS touch display with dimmable backlight
- Frameless glass front and capacitive touch
- Compliant with ANSI/ ASHRAE 135-2012 and ISO 16484-5:2012 standard
- Supports BACnet/IP, BACnet/SC, BACnet MS/TP and BBMD
- Full alarming, scheduling and trending functions
- Modbus TCP and Modbus RTU (Master or Slave), LON FT-10/IP
- Integrated web server for device configuration, monitoring data points and hosting customized web pages
- Configuration Tool free of charge

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Touch Panels

Models and UI Templates

7”

12.1”

15”

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Touch Room Controller

Models and UI Templates

4”

7”

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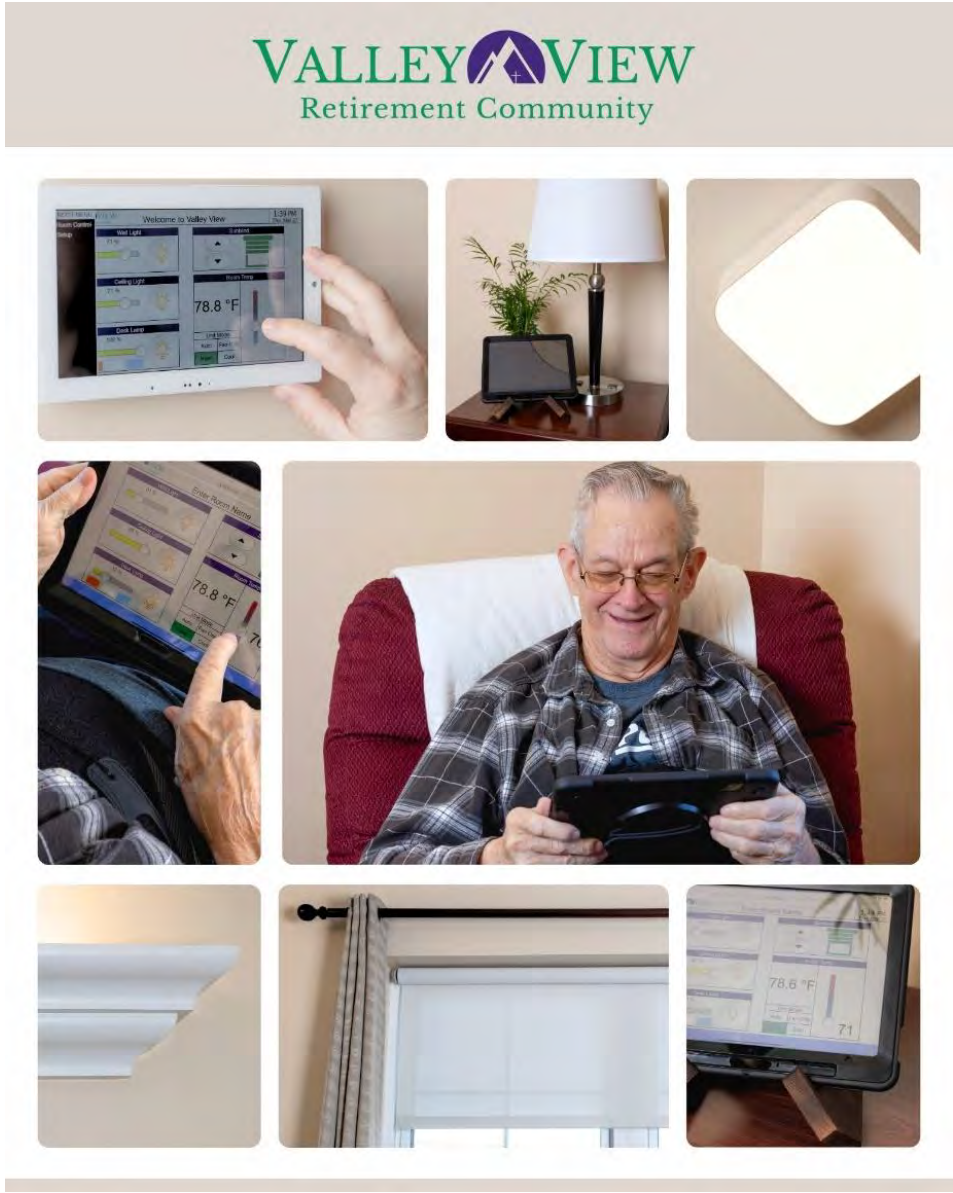
Use case

Retirement Community with Step by Step Modernization
Proof of Concept

Requirements from Valley View Operator, Pennsylvania, US

- Raising the standard and value of offered services
- Modern, easy-to-use, personalized care supported by technology
- Flexible, phased modernization that does not disrupt facility operations, allowing the operator to spread the investment over time and manage the budget more effectively
- Integration of lighting, shading, and HVAC



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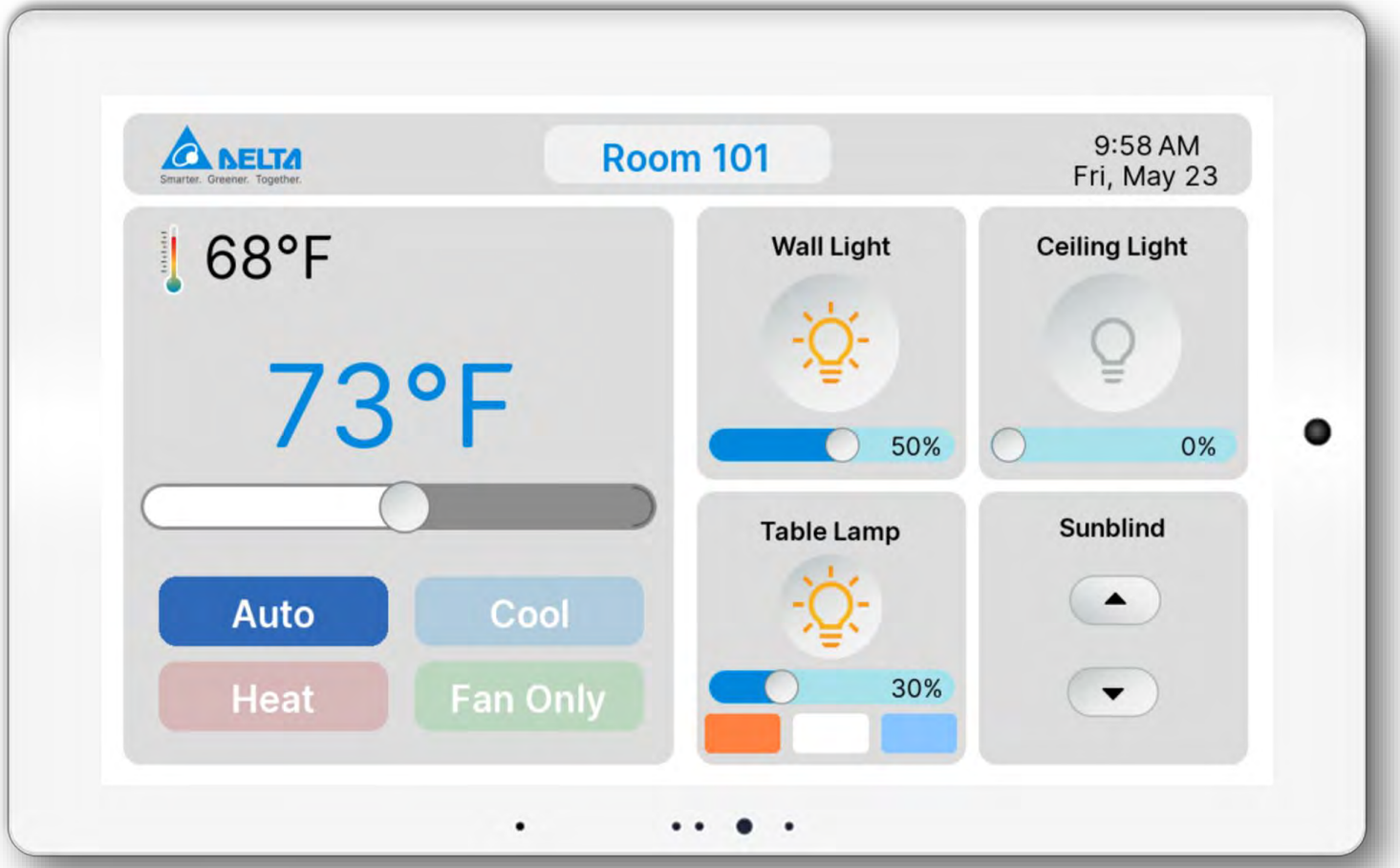
Retirement Community with Step by Step Modernization
User Friendly UI



Jeff Foflygen
Director of IT @ Valley View
Belleville, Pennsylvania

Our approach was to keep it simple, using senior-friendly intuitive control interfaces displayed on a touch iPad.

Bluetooth® SIG Mesh

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Smart Resident Room
Architecture

7.5W LED Bulb
A60-G/B
Dimming
Tunable White

Light Fixture
Stadia
Architectural Decorative
Downlight

Light Fixture
Hornet
Dimming, Tunable White
Downlight

Light Fixture
Carisma
Architectural Linear Luminaire

Bluetooth Mesh Light
Switch
Illumra, *BTT-S1AWH*

I/O Module
LOYBT-IO1
12 UI/UO
6 DO

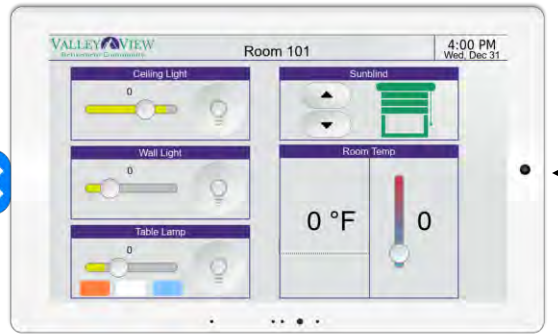
Dry
Contact

Individual HVAC
equipment
PTAK, FCU

Quiet Motorized Shades
Sonesse®
30 DCT 24V DC

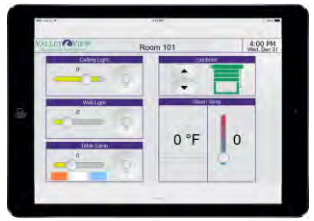
IAQ Monitor
UNOslim
Temp, RH, CO2,TVOC
PM10, PM2.5

Occupancy Sensor
LOYBT-MS2
Temp, RH, Presence



7" Touch Panel ***LPAD7-41G3***
Room Controller, Temperature
sensor, Gateway to BMS

Wi-Fi



iPAD or tablet
To be provided by
customer

Bluetooth® SIG Mesh

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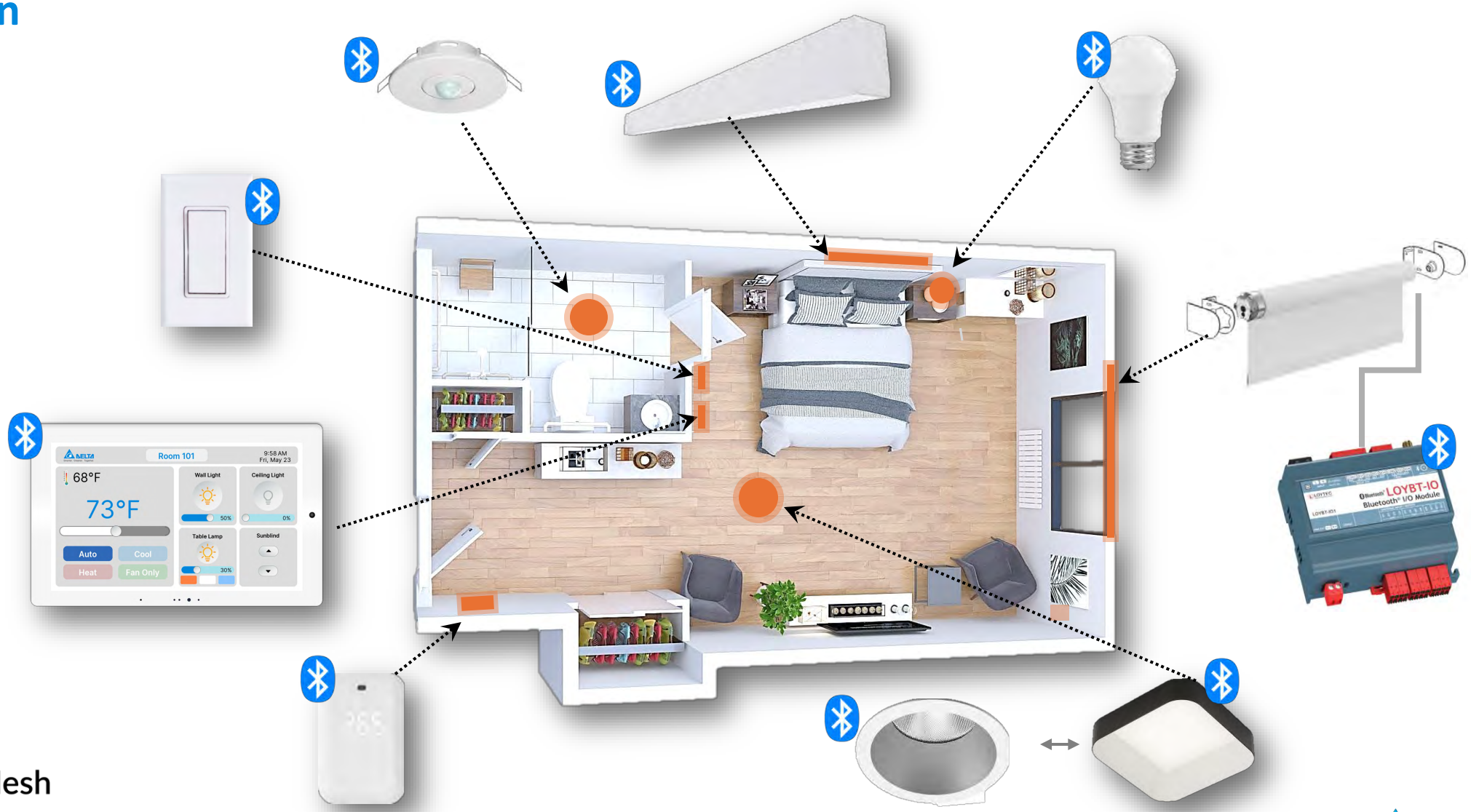
Smart Resident Room

Room Plan



Bluetooth® SIG Mesh

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Step by Step Modernization

Floor Plan

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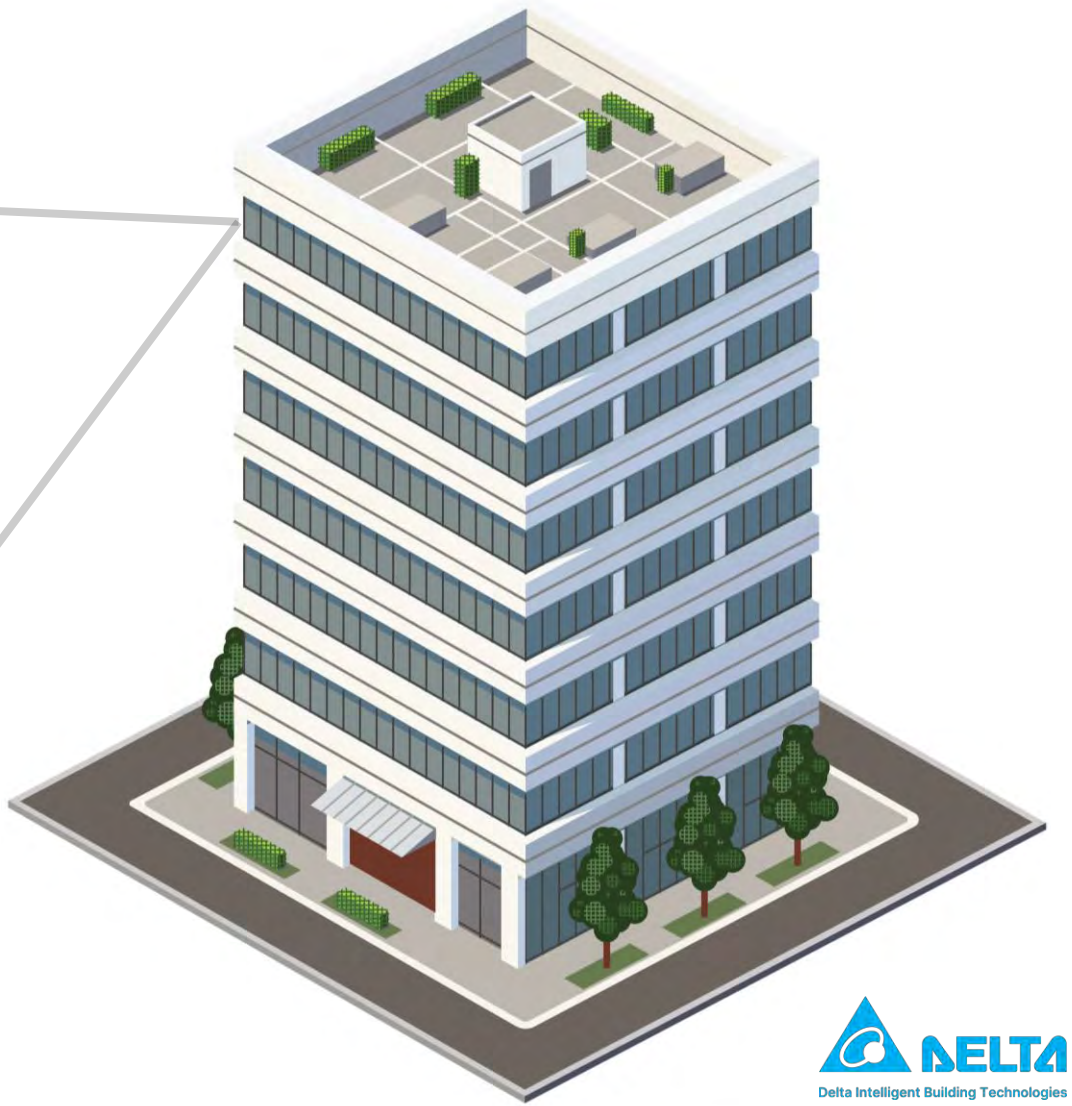
Step by Step Modernization

Building



Bluetooth® SIG Mesh

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Smarter. Greener. Together.