System Guide

# Architecture FLX

## Multisite - Release 3.0

Connected lighting monitoring and management for all sites and formats, suitable for retail chains

interact

# Contents



# 01 General

# 01 General

## 1.1 About the document

The document relates to Architecture FLX - Multisite - Release 2.1 connected lighting system.

This document describes functionality of the user interface and how to operate it.

## 1.2 Intended audience

The information in this guide is specifically intended for system designers, proposal managers, system architects and specifiers employed by Systems and Services, Customer IT Departments, etcetera.

## 1.3 Related documents

Refer to other documents for more information:

- **Commissioning Guide**
  describes the installation and deployment of the lighting system.
- **User Guide**
  describes the usage of the Interact Multisite System Manager dashboard and user pages, that are specifically aimed at facility managers and format managers.
- **Security Statement**
  describes end-to-end system security that guarantees data confidentiality, integrity, and availability.
- **Project intake form (Project template)**
  guides and simplifies the onboarding process of a customer and a new site to Interact Multisite System Manager.
- **Bill of Materials**
  overview of all components and their 12nc ordering codes.
- **Technical Note**
  provides information with a focus on additional tasks that require attention only once.

## 1.4 Abbreviations

The following abbreviations are used throughout the document:

| Abbreviation | Explanation |
|---|---|
| **BMS** | Building Management System |
| **BoM** | Bill of Materials |
| **DALI** | Digital Addressable Lighting Interface communication protocol |
| **DMX** | Digital MultipleXed communication protocol |
| **DSI** | Digital Serial Interface communication protocol |
| **HVAC** | Heating, ventilation, and air conditioning |
| **IR** | Infrared |
| **LMS** | Lighting Management System |

| Abbreviation | Explanation |
|---|---|
| **PDDEG-S** | Philips Dynalite DIN-rail Ethernet Gateway Supervisor (in short: Site Gateway) |
| **PDEB** | Philips Dynalite Ethernet Bridge (in short: Ethernet Bridge) |
| **PDEG** | Philips Dynalite Ethernet Gateway (in short: Ethernet Gateway) |
| **PDSE** | Philips Dynalite Site Enabler app (in short: Site Enabler app) |
| **PE** | Photo electric |
| **PIR** | Passive Infrared |
| **PWM** | Pulse-Width Modulation phase cut dimming |
| **C-ROC** | Signify Customer Remote Operating Center |
| **UI** | User interface |

## 1.5 Terms and definitions

The following terms and definitions are used throughout the document:

| Term | Definition |
|---|---|
| **Format** | A group of sites with similar design or style (In retail also known as the formula). Every site belongs to only one format |
| **Area** | A lighting control area (for example Sales floor or Back of house) |
| **Scene** | A specific set of light levels that can be edited and recalled |
| **Child area** | A lighting control zone (like Bakery or Fresh food) included inside an Area (for example Sales floor) |
| **Logical channel** | A lighting control sub-zone included inside a Child area (like Bakery spots or Bakery counter) |
| **Concepts** | Light concept including the defined areas, scenes, child areas, logical channels etc. to be used in a format |
| **Schedules** | Set of all scheduled events (simple events, special events, holidays) that automatically control the lighting of the sites in a specific format |
| **Astronomical timeclock** | The ability to control and schedule the light levels depending on sunrise and sunset times (day and night mode) |

| Term | Definition |
|---|---|
| **Deployment** | A concept and schedule ready for transfer to either one site or multiple sites |
| **Draft (state)** | Deployment in preparation |
| **Deployed (state)** | Deployment in use |
| **Archived (state)** | Deployment no longer in use |
| **Online status** | Shows whether the Site Gateway is online or offline |
| **Not requested** | No workorders available; site not in execution phase |
| **Under preparation** | Workorders created and execution phase in progress |
| **Operational** | Workorders are resolved/closed, site operational |
| **Subscription** | Actual status of the contract(s) and license(s) |
| **(Not) deployed** | Shows whether the site is functional (or not) |
| **Functional test** | Confirms the integrity of the emergency circuit and the correct operation of an emergency fixture, changeover device, and battery emergency power supply. This test simulates a power failure to check whether the driver correctly switches to battery power |

# 01 General

| Term | Definition |
| --- | --- |
| **Duration test** | Verifies whether the battery has sufficient capacity to illuminate the emergency fixtures for the rated duration |
| **Emergency test configuration** | Consists of one or more emergency test groups and the test type (duration or functional test). Emergency test configurations simplify scheduling and reporting |

# 02 System description

# 02 System description

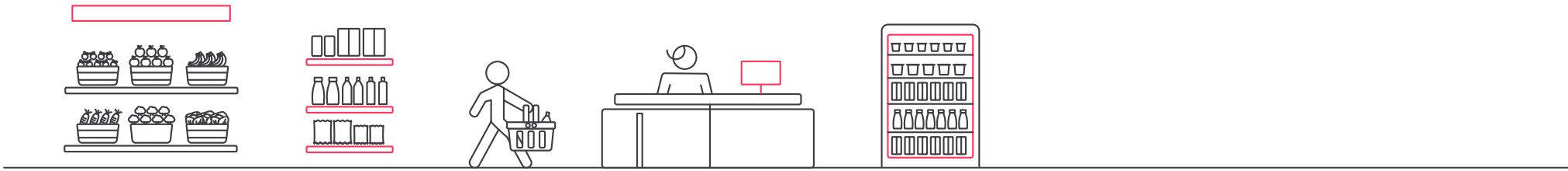
## 2.1 Introduction

The Multisite system has very intuitive dashboard and user pages, which can be used to create, maintain, manage, and monitor the lighting system in retail environments.

Adjust lighting schedules at the touch of a screen, see the real live lighting status and create zones that reinforce your brand, highlight promotions, and provide ambience for special events or different seasons.

The Multisite system offering has possibilities for new install and upgrade scenarios:

- **Roll out scenario**
  The scenario for new sites and deep renovations
- **Upgrade scenario**
  The scenario to upgrade existing sites equipped with Architecture FLX – Store (Mini Kit, Kit or Flex) or former StoreWise to Architecture FLX – Multisite.



# 02 System description

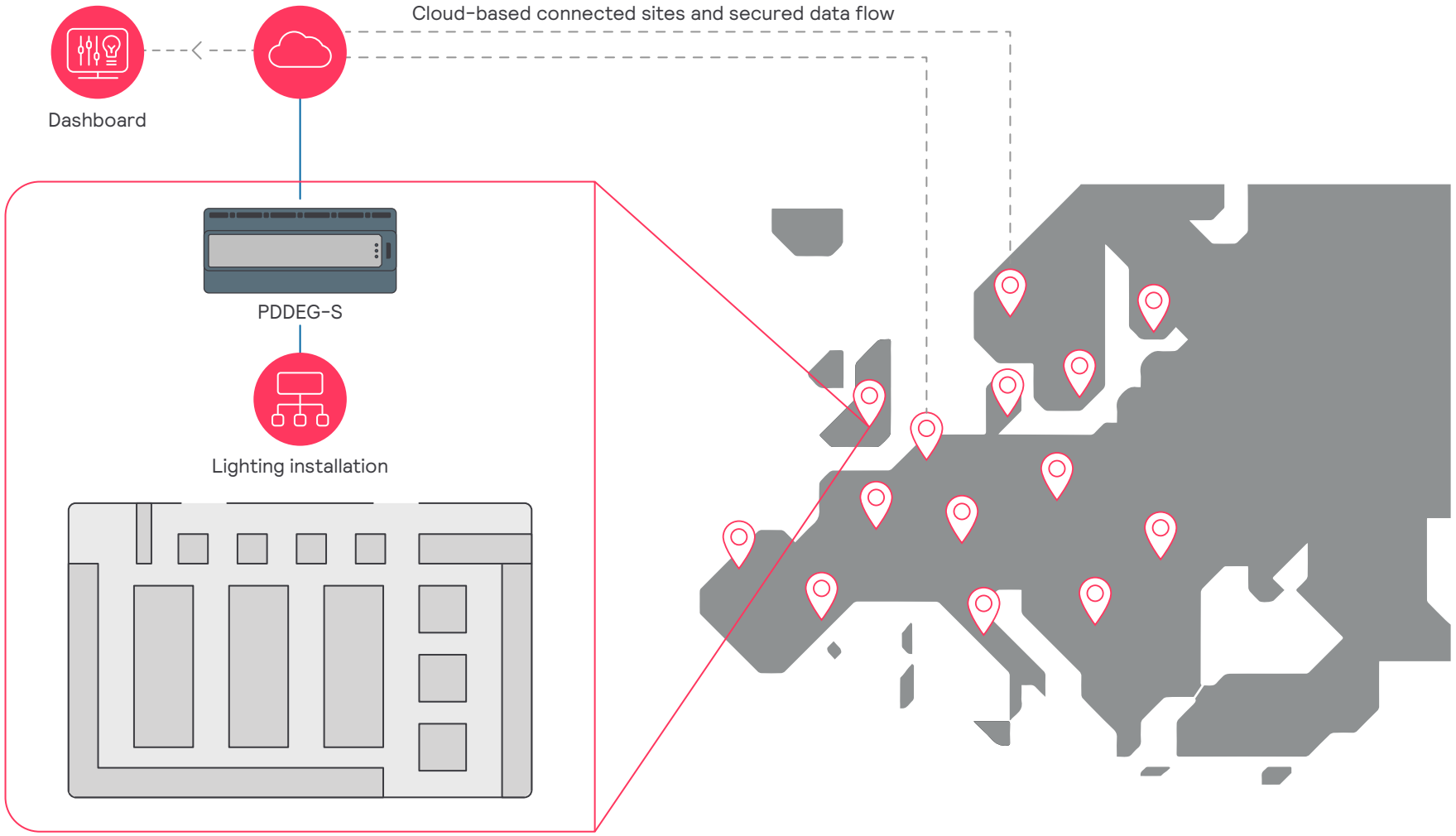



Figure 1. A scalable lighting system that connects multiple sites to a single dashboard via the cloud

# 02 System description

### 2.1.1 Multisite

The different sites send their data to the cloud. This data is used to show aggregated or site-specific overviews of the connected sites. The basis of each onsite system is the Philips Dynalite DIN-rail Ethernet Gateway (PDDEG-S), that functions as the central 'site controller', interconnecting the onsite system with the cloud.

Internet access is provided through the IT network of the customer.

### 2.1.2 Onsite

The Multisite system currently operates onsite with the following Store topology:

- Wired

The control options of the Store system provides maximum flexibility to the onsite lighting system.

### 2.1.3 Retail formats

The Multisite system is suitable for all kinds of retail formats:

- **Convenience**
  Smaller local stores and express formats
- **Supermarket**
  Larger supermarkets and DIY retails
- **Hypermarket**
  Very large out of town and department stores
- **Distribution centers**
  Warehouses and dislocated pick-up points

### 2.1.4 Control options

Addressable DALI is the preferred way to control and monitor individual light points to benefit from the entire rich feature set of the Multisite system. However also DALI broadcast, 0-10V/1-10V, phase cut dimming (PWM), relay control, and DMX control is supported.

All these control options enable the use and management of all types of light points, like general illumination, refrigerator and display lighting, façade lighting etcetera.

# 02 System description

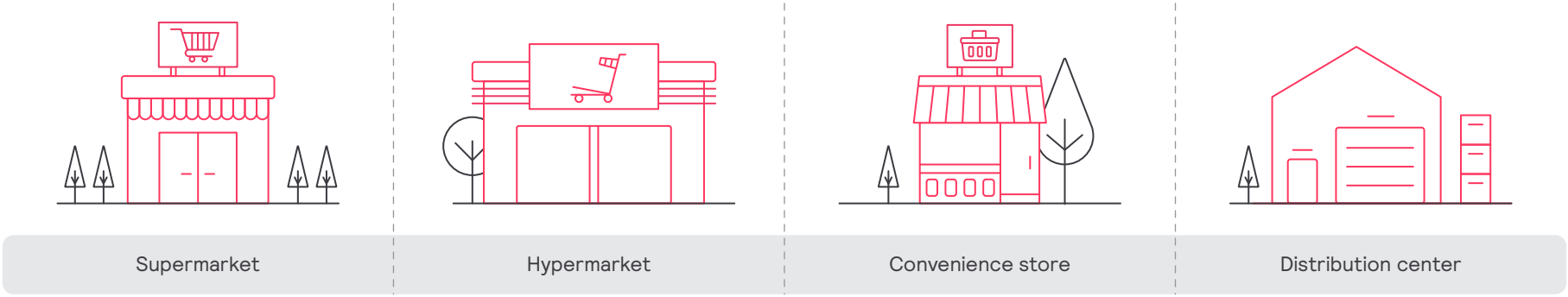



Figure 2. A suitable solution for all retail formats

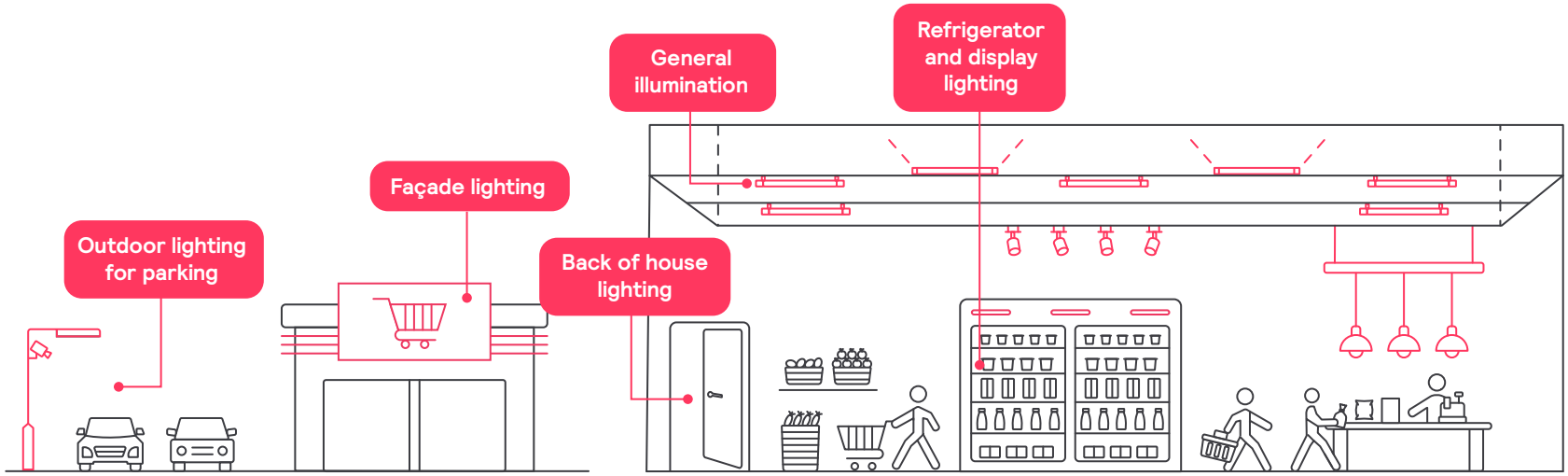



Figure 3. For store lighting and beyond, managing all lights: outdoor, parking, façade, refrigerator, etcetera

### 2.1.5 Dashboard

The Interact Multisite System Manager dashboard brings all data to the fingers of the user, depending on the roles and tasks of the person logged in.

Access to the system is limited only to authorized users. To request user access please contact your local Signify support team.

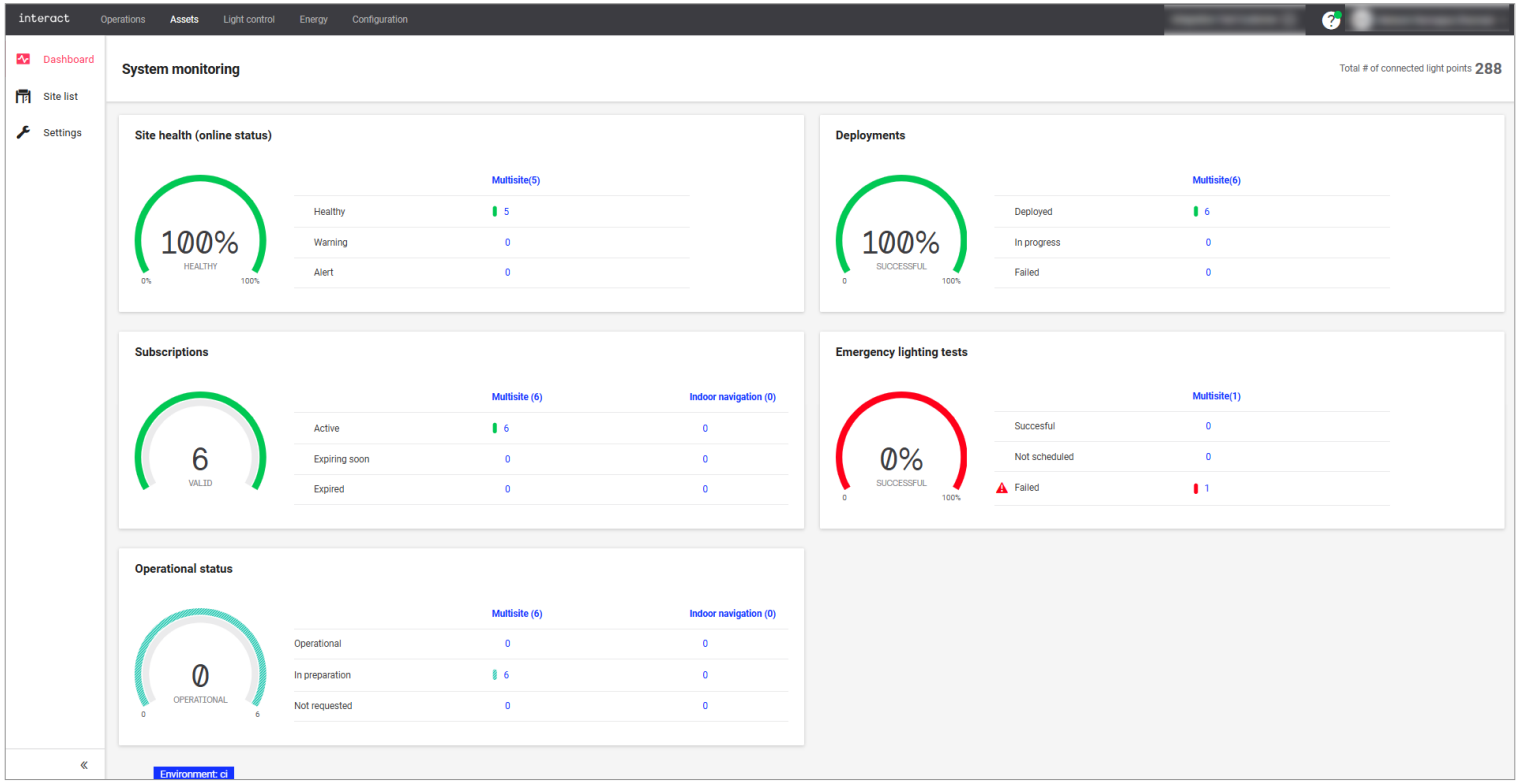



Figure 4. A screenshot of the dashboard showing data for a specific customer

## 2.2 Features

The Multisite system includes all the know features of the Store system, amongst others DALI Addressable, DALI Broadcast, 0-10V/1-10V, phase dimming and relay switching bringing the highest level of lighting functionality to the site.

### 2.2.1 Multisite features

The most important features that you currently can find when using Interact Multisite System Manager:

- Multisite management enabling retail chains to view and manage the lighting efficiently across all of their sites
- Asset overview showing the system health and status of licenses and subscriptions
- Connected emergency light testing:
  - Shows the overview of each test configuration information for both functional and duration tests for the selected site
  - Allows to download the detailed test report that includes the result of the latest functional and duration tests.
- Energy optimization helping the customer to reduce the lighting based energy consumption
- Scene and schedule management:
  - Adjust the light levels to your needs remotely
  - Intuitive schedule creation and calendar adjustments
  - Easy deployment to all sites via bulk updates
- Zoom in to individual site to view the current status and pending deployments
- RGB accent lighting attracts more customers and enriching their shopping journey
- Onsite integration with Alarm and BMS systems and support of common interfaces like dry contact, BACnet and CGI
- Profile-based user management and secure user authentication
- Multilanguage support
- Upgrade from Store/StoreWise to Multisite is possible.

Tip

See the Interact system for Retail specifier pages on the internet for more information.

#### 2.2.2 Easy commissioning

We prepare the digital twin of the lighting system upfront, simplifying the on-site commissioning effort so it can be done by your installer. We provide the installer with an easy to use app that guides him step by step through commissioning and validation.

#### 2.2.3 Self-healing

The addressable infrastructure of the architecture automatically detects a driver or luminaire replacement and swaps the DALI address from old to new. No commissioning required.

#### 2.2.4 Remote alert and reporting

The remote monitoring package consists of:

- Helpdesk and service ticketing
- Regular software and firmware updates via cloud
- Remote uptime monitoring of all your sites
- Quarterly performance report
- Annual remote system health check
- Access to your customer portal for all documentation

## 2.3 Users and user roles

Below an overview of the users that have interaction with Interact Multisite System Manager. See Appendix B Roles and responsibilities for more information.

#### 2.3.1 Users handling offsite tasks

Offsite tasks involve site preparation and design, but also system monitoring and maintenance without requiring someone present at the site.

**Operations**

A completed *Project intake form* is the basis to create tickets that will be handled by the Signify Customer Remote Operating Center (C-ROC). There are tickets required for creating a new customer and site, submitting, and enabling licenses. After activation of a site, the C-ROC remains involved to monitor the systems and provides assistance in case of any issues.

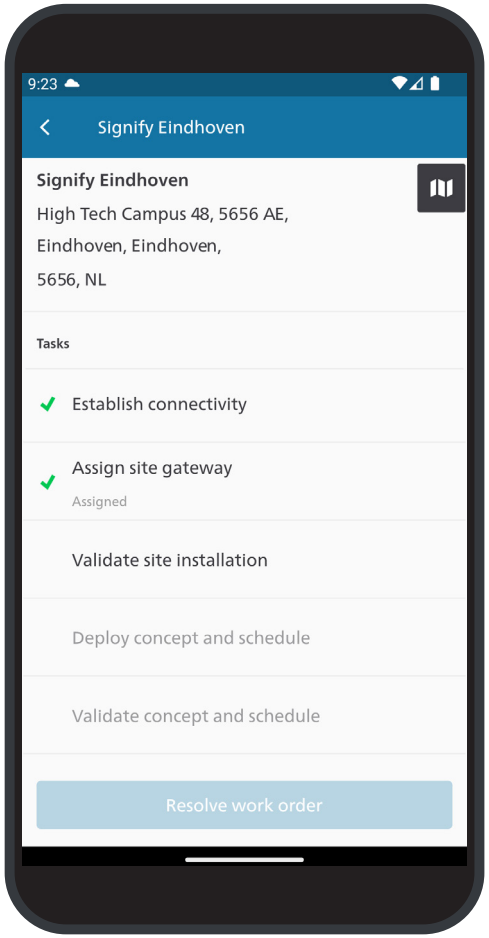
**Lighting designer**
The lighting designer uses the site layout/floor plan to create a lighting design, resulting in a reflected ceiling plan and luminaire count (bill of material for the luminaires).

**Controls designer**
The lighting design needs to be translated into a controls design. The controls designer combines the information provided in the project template and the reflected ceiling plan using System Builder or System Designer. The output of the design is a bill of material for the controls, a project file, and an installation summary for upload into the Interact cloud.

Note

A technician license of System Builder is required before you can use System Designer.

After the upload is complete, the controls designer uses Interact Multisite System Manager to create and/or extend areas, channels, and scenes for the customer.




### 2.3.2 Users handling onsite tasks

Onsite tasks like installation and commissioning typically require to have someone present at the site.

**Installer/commissioning engineer**

The designs require approval by the customer, after which the products will be ordered and delivered. When the site is ready for installation, the installer and/or the commissioning engineer can start their activities.

Uses dedicated workorders in the Philips Dynalite System Enabler app to:

- install the Site Gateway and assign it to the cloud by scanning the QR-code on the device,
- install and wire the Dynalite network controllers including the sensors and control panels,
- take care to setup the lighting system,
- deploy the project file into the onsite installation,
- perform a visual inspection using the app to validate all areas and channels,
- deploy the default concept and schedules from the cloud and validate them,
- finalize the site so that it shows up on the user pages as *Ready to use*.

### 2.3.3 Users at the end customer

**Facility manager**

The role of the facility manager is also known as energy manager. People in this role are responsible for:

- Supplier management of building contractors; store realization and renovations including on-time store opening
- Ensures proper management and maintenance of sites, coordinating maintenance and adjustments to onsite equipment, infrastructure, and installations
- Creates and maintains conditions so that all employees can perform their work properly and efficiently, keeping the budgetary responsibilities in mind
- Energy management
- Process optimization and monitoring security

The facility manager uses Interact Multisite System Manager to:

- Lighting asset management
  - Monitoring system health
  - Monitoring and downloading emergency test reports
  - Centralized name conventions
  - Etcetera
- Energy monitoring
  - Notional energy
  - Metered energy
- Scene & schedule management
  - Viewing of current and upcoming scenes
  - Emergency cases
  - Etcetera

**Formula manager**

The role of formula manager is also known as format or concept manager. People in this role are responsible for:

- Updating brand formats
- Development of new store formats, mostly in a central team
- Concept development, design and lay-out
  - Guide the design agency by inspiring and presenting concept ideas
  - Develop and present vision of format.
- Conduct analysis and research and develop unit strategy per format (content – shape- presentation of theme's – communication)
- Realize formats and implement updates/new formats in stores
- Roll-out of updates and changes to format

Each store format may have a dedicated formula manager.

The formula manager uses Interact Multisite System Manager to:

- Scene & schedule management
  - Remote adjustments
  - Deployment of concept
  - Access to (groups of) stores in the format
  - Etcetera

**Store manager**

People in this role are responsible for:

- Store management and operations, supply, sales, customer service, staff management
- Improving sales, productivity, and profit
- Maximizing the store processes to spend as much time as possible on the shop floor
- Analyze sales figures and respond to them to improve sales
- Coaching and training the team to improve performance
- Making staff rosters, payroll and responsible for the recruitment process
- Collaborate with the District Manager and Back Office partners.

The store manager has access to:

- Local temporally manual override via wall button switch or wall panel

**Store staff**

For any other employee in the store, like cashiers, stocking personnel etcetera, a wall button switch or wall panel is available. With this switch or panel, the local manual override can be activated. This function bypasses the automatic schedules of the system. After two hours or at the next scheduled event, the system switches back to automatic operation.

## 2.4 Architecture

The architecture is characterized by two distinguished parts:

- Connected architecture
- Onsite architecture

### 2.4.1 Connected architecture

**Cloud and gateway**

The Site Gateway (PDDEG -S) functions as the central ‘store controller’, interconnecting the onsite architecture and safeguarding secure cloud connection. With the gateway being online, and a fully commissioned system, everyone with sufficient access rights can remotely monitor and control and see the data generated by the site in the dashboard. This data is safely stored in the Interact cloud.

**Connectivity service**

The Site Gateway requires outbound internet access to send all data to the cloud. This access can be provided by:

- Customer IT
  Arranges access to the Interact cloud via the internet according to the specifications via the IT infrastructure of the site.
- Multisite Connectivity Service
  Connectivity service using a 4G modem managed by Signify.

Note

The Interact Connectivity Toolbox simplifies the audit of the onsite IT infrastructure, validating if it is ready to install the Multisite system components.

**Retail operations portal**
Managing all the customers, sites, users, licenses, etcetera is done via the Retail operations portal. Dependent of the nature of the task, the handling is done by either Global Software Operations or the Customer Remote Operating Center.

**Remote operations lifecycle services**
By default, the following remote services and support are offered:

- Helpdesk and service ticketing
- Regular software and firmware updates via cloud
- Remote uptime monitoring of all your sites
- Quarterly performance report
- Annual remote system health check – controller & light points health, report includes optimization suggestions
- Access to your customer portal for all documentation

Signify optionally also offers remote operations lifecycle services. In this case the Signify Customer Remote Operating Center (C-ROC) maintains the high performance of your connected system over the full lifetime through our comprehensive remote service package:

- We adjust your light upon your needs
- Light levels & schedules bulk updates of all your stores of one format in one go
- Remote system optimization

**Configuration of emergency light test schedules**
Experts must perform the emergency light test schedules configuration through system builder.

**Licenses**

A license subscription is required to get full access to the rich set of Multisite features and historical data.

Without license:

- Lighting in all your sites continues to operate
- Local lighting control in every site keeps running
- Read-only access to the Multisite dashboard with very limited data
- Over-the-air security software updates to the cloud and your Site Gateways
- Storage of historical data for 90 days after expiry

With license also:

- Connected system health monitoring features
- Connected emergency light testing features
- Connected energy monitoring features
- Connected lighting control
- Remote technical support
- Alerts and reporting features
- Local monitoring and management of the lighting at your site(s)

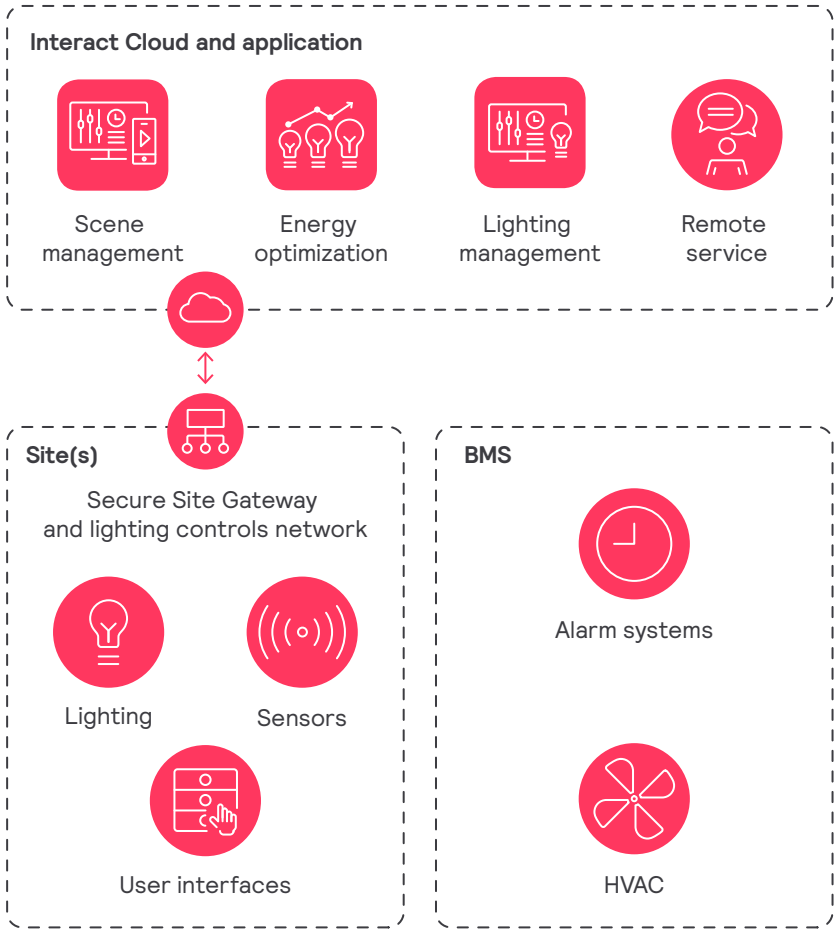



Figure 5. Offering central scene management, lighting management and energy optimization to the local sites via the cloud

### 2.4.2 Onsite architecture

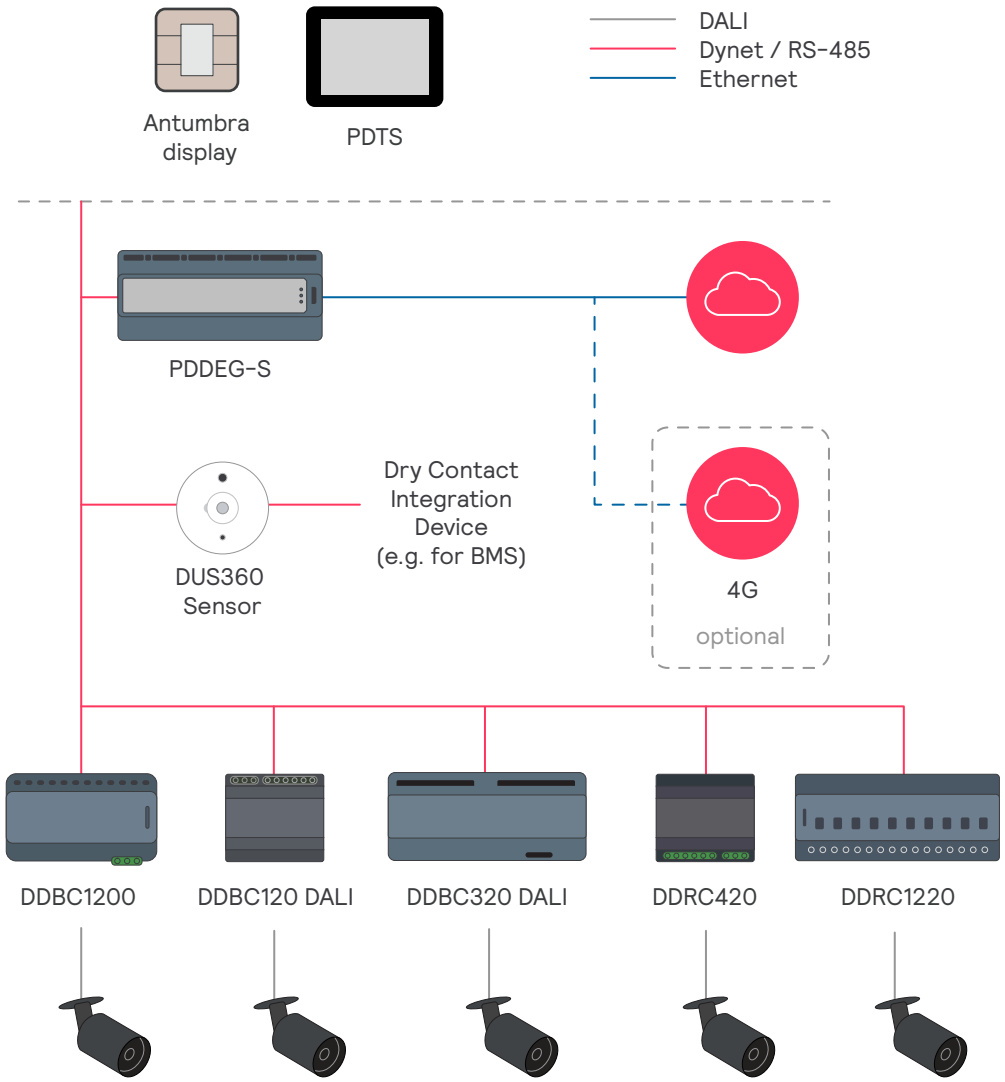
The Multisite system currently operates onsite with the following Store topology:

- Wired

The Site Gateway (PDDEG -S) functions as the central 'store controller', interconnecting the onsite hardware.

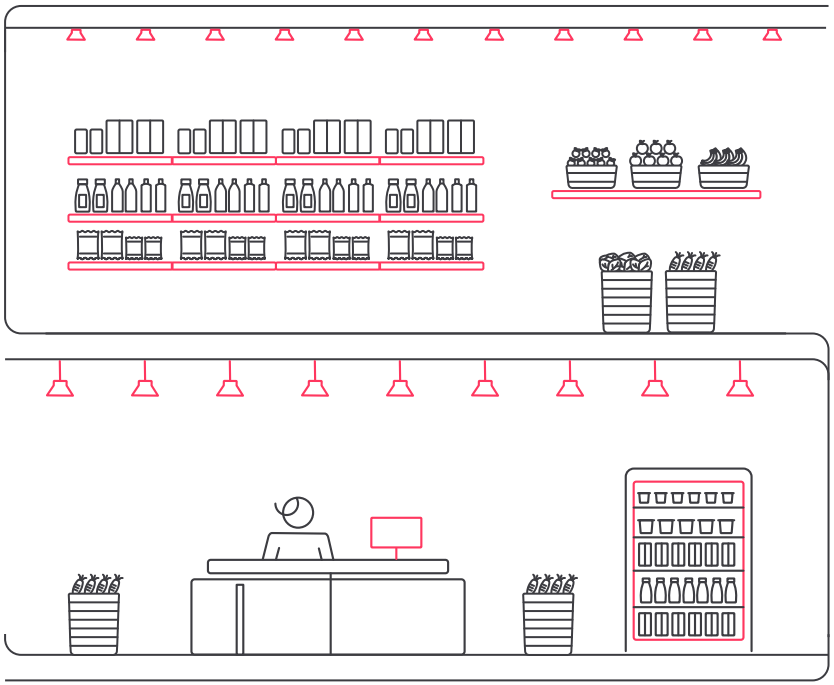
The correct combination of controls hardware creates a robust controls network enabling:

- Scene control with dimming & zoning with addressable DALI support
- Support for DALI Broadcast, switched lighting, plus optional phase, phase cut dimming (PWM), DMX, 0-10V/1-10V dimming
- Daylight & occupancy sensing to dynamically adjust lighting to local conditions
- Local manual override, plus integrations with alarm systems, HVAC
- Metered energy consumption, showing energy consumption of multiple groups, for example for lighting, cooling, freezers, etcetera.




**Wired topology**

In the wired infrastructure, the Gateway connects to the control equipment by means of DyNet wiring. Luminaires are connected to the load controllers, depending on the type of luminaire by means of power and/or control cables.

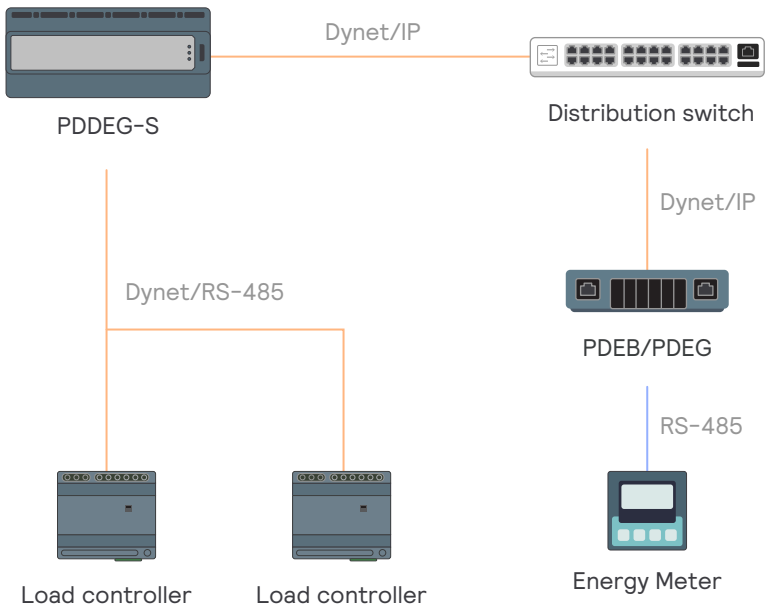


### 2.4.3 Metered energy topologies

Energy metering requires per metered group an extension of the topology to connect an energy meter. During commissioning, the meters must be added to the System Builder job file and assigned to the correct groups to enable reporting of the energy consumption to the cloud.

The feature can be enabled using the following extensions of the topology:

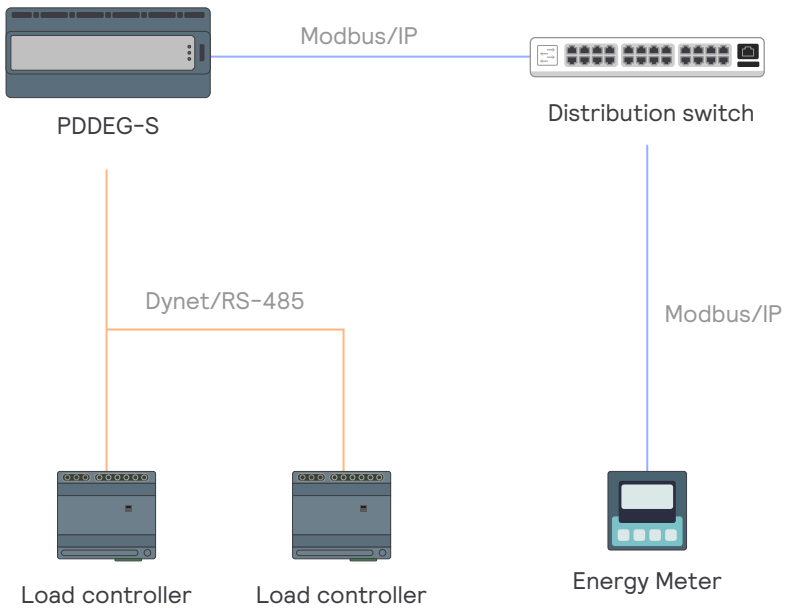
- Adding an Ethernet Bridge (PDEB) or Ethernet Gateway (PDEG) to enable metering using Modbus over RS-485.
- Using the ethernet connectivity of the site gateway (PDDEG-S) to enable metering using Modbus over IP.
- Adding a RS-485 Gateway (DDNG485) to enable metering using Modbus over RS-485.




Topology of metering over RS-485 via PDEB or PDEG

**Using Modbus over RS-485 via a PDEB or PDEG**

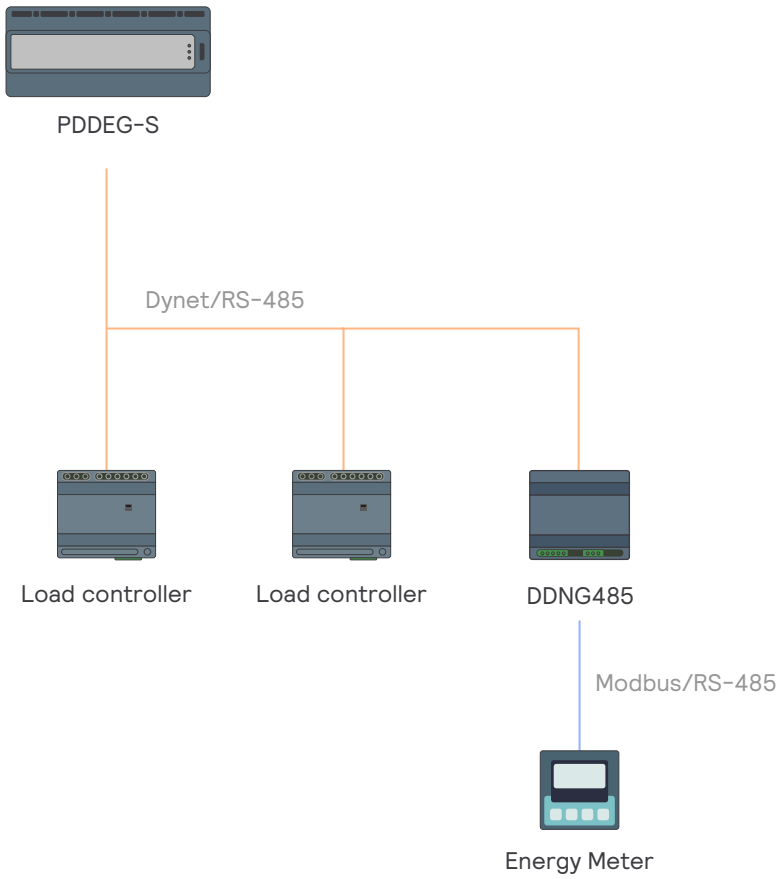
Using Modbus over RS-485 via an Ethernet Bridge (PDEB) or Ethernet Gateway (PDEG), the signals from the Energy Meter are transmitted using the Modbus RS-485 protocol to the Ethernet Bridge or Ethernet Gateway, which device translates it to Dynet over IP and transmits it to the Site Gateway (PDDEG-S). The distribution switch is required as the Site Gateway has only a single RJ45 Ethernet connection, and this device also needs connection with the cloud.




Topology of metering over IP via PDDEG-S

**Using Modbus over IP via the Site Gateway**

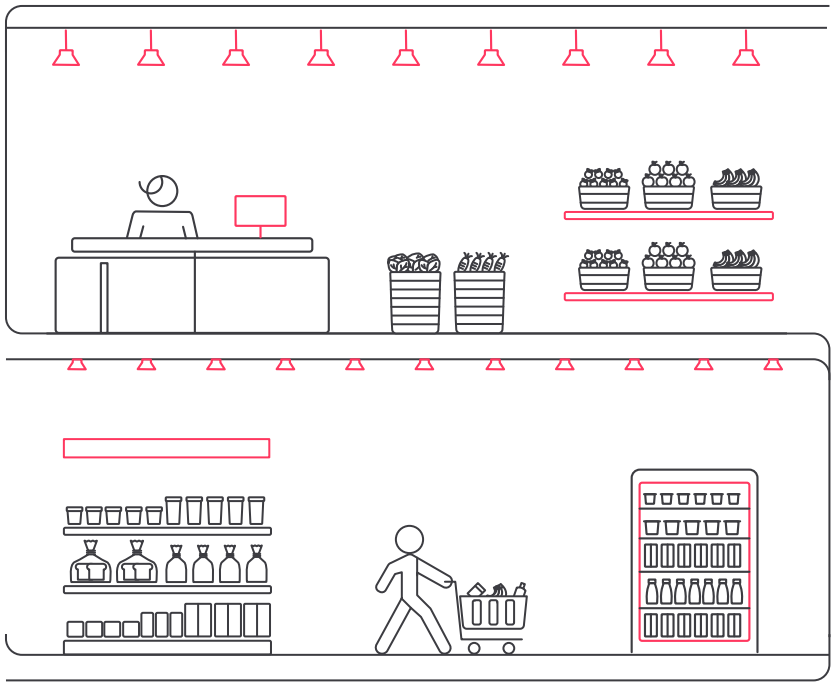
In the case of using Modbus over IP, the signals from the Energy Meter are transmitted directly to the Site Gateway (PDDEG-S). The distribution switch is required as the Site Gateway has only a single RJ45 Ethernet connection and also needs connection with the cloud.




Topology of metering over RS-485 via DDNG485

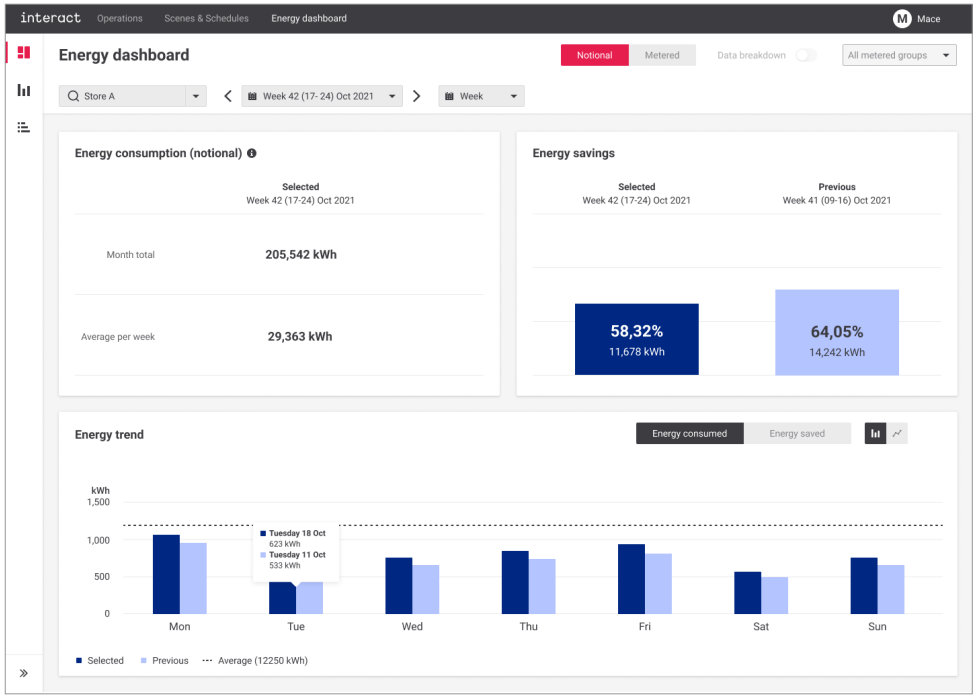
**Using Modbus over RS-485 via a DDNG485**

Using Modbus over RS-485 via a RS-485 Gateway (DDNG485), the signals from the Energy Meter are transmitted directly from the RS-485 Gateway to the Site Gateway (PDDEG-S) using the RS-485 protocol. In this topology, a distribution switch is not required.



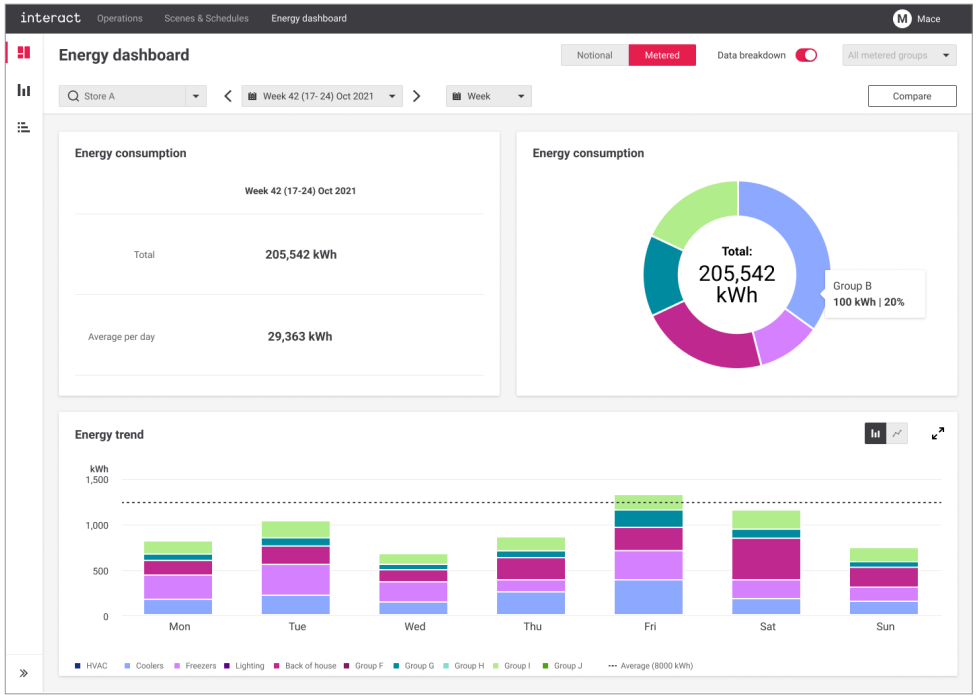
## 2.5 About notional and metered energy

In Multisite we distinguish notional and metered energy. Because of the natural differences between both methods, it's possible to use them alongside each other and even complementary to each other. The paragraphs below aim to explain the differences between notional and metered energy and their application areas.



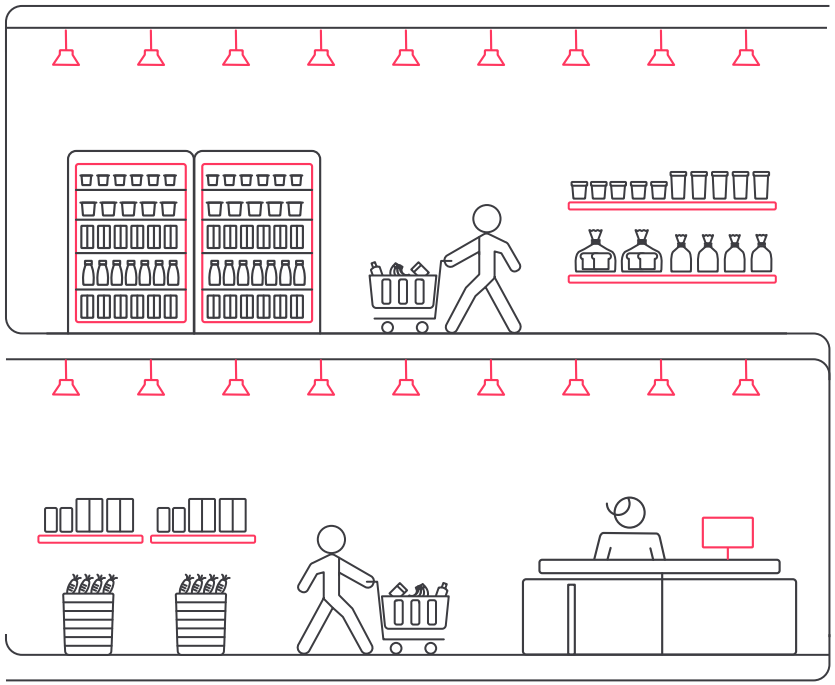

## Notional energy

Notional energy is a theoretical, indicative value that is constantly calculated from the installed power of all lighting that is controlled by the Lighting Management System (LMS), either by means of DALI controllers or relay controllers. As a basis for the calculations, each light point in the LMS is given an installed power, which together with the analysis of the switching and/or dimming actions of the connected light points gives the notional energy consumption. The accuracy of value the is highly dependent on the accuracy of the given installed power per light point. However, standby power, effects of temperature variations, fading of light, etcetera are not taken into account. This method has a high granularity and can show the energy consumption per logical and/or physical channel, or even per light point, but it's not possible to include externally controlled lighting (for example in refrigerators) or the energy consumption of other systems (like HVAC). The granularity of notional energy allows to create a breakdown of energy consumption and energy savings per channel. Notional energy calculations can also be used to predict the energy consumption of scenes and schedules that are intended for use.




### Metered energy

Metered energy uses an electricity meter per electrical circuit (power group) to physically measure the energy consumption for that circuit. By means of electricity meters, it's also possible to measure the energy consumption of circuits that are used beyond lighting, for example refrigerators and HVAC and to show these values in the energy dashboard. The accuracy is dependent on the accuracy of the meter used (typically 1%). Typically, this method has a lower granularity as it's only possible to show the energy consumption per circuit. A higher granularity can be achieved by adding more electricity meters to the distribution board, but still, it's not possible to distinguish between logical and/or physical channels.



**Notional versus metered**

As the energy consumption in both notional and metered energy is derived in completely different ways, it's highly unlikely that you will see identical numbers between both methods. Metered energy gives an accurate absolute number of consumed energy that eventually can be used for cost calculations and energy billing. Notional energy provides and indicative, theoretical number of consumed energy, which also can be used to keep track of the notional burning hours of the lights and allows to predict the energy consumption of scenes and schedules that are intended for use, to help make a decision which one is best to deploy.

## 2.6 Connected emergency light testing

Emergency lighting test feature allows to test the emergency lights that provide an illumination in several key areas of a premises where occupants can leave immediately during an emergency.

Emergency lighting test consists of functional test and duration test. Multisite System Manager performs the emergency lighting test for each emergency test configurations through a web-based portal testing capabilities to reduce the time consumption and human errors. Multisite System Manager also allows to schedule an emergency lighting test and download the test reports.

# 03 Preparation and planning


3.1 System characteristics

3.2 System limitations

3.3 System wiring

# 03 Preparation and planning

The system design of the Multisite system is different when compared to a standard Dynalite system. Multisite is a simplified, easy to use system, providing full control to the customer. The system requires a design-in for the complete customer offer (luminaires+controls) and needs a trained Dynalite commissioning engineer on-site to configure the system.

## 3.1 System characteristics

During design and commissioning of a Multisite system, pay attention to the following system characteristics:

1. The Multisite system combines a modular Dynalite control topology with a user interface developed for a retail store. Currently, multiple types of control components in the system are supported:
   - DALI individual addressable luminaire controllers
   - DALI Broadcasting
   - Phase cut dimmable controllers
   - Relay controllers
   - A mix of relay, DALI individual, DALI broadcast, 0-10 V/1-10 V group controllers.
   - For load controllers tested and verified for the Store system, see section 3.2 System limitations for the types.
2. A pre-configured, ready to use, System Builder (SB) template based on the capabilities of the User Interface (UI) is available.
3. Pre-design of the project area configuration is crucial since the area allocation can only be achieved by separating the physical channels by means of wiring. The physical channels are mapped to the logical channels which can easily be renamed to the specific needs for these areas. For instance, Fresh food, Bakery, etc. These names are shown in the UI.

## 3.2 System limitations

### 3.2.1 Connected

The Site Gateway (PDDEG-S) requires a fully available and functioning internet connection at the day of installation. This connection must be secure and available 24/7. Also, a firewall preventing inbound communication is of the highest importance.

Refer to the *Architecture FLX - Multisite Security Statement* for further details of required ports to be opened, protocols that need to be enabled, etcetera. This document can be found on the Signify Partner Portal and should be discussed upfront with the IT representative of the customer.

Note

Each site equipped with a Multisite system generates an expected average traffic of 1 GB/month.

### 3.2.2 Onsite

Note

Always make sure to read the Philips Dynalite documentation for the exact system limitations.

In the onsite architecture, the choice of the controller types depends on the necessities per project. The design of the system should be aligned with the customer needs referring to their lighting design and area requirements. In general, the system has the same system limitation as a standard Dynalite system.

**Quantity of network devices**
In theory, in the RS-485 standard it's possible to connect an unlimited number of devices connected to a data cable. However, it's recommended to limit the number of devices per spur to 100 and maximize the number of spurs per trunk to 128. This results in a total maximum of 12800 devices per trunk. Adding network isolators on spurs and running multiple trunks removes any realistic limitation from a single Philips Dynalite network.

**Power supply**
Because several devices are powered over the network, the quantity of consuming devices such as panels and sensors need to be considered. Typically, most panels and sensors will run between 10 to 15 Vdc at 25 mA.

To overcome a voltage drop, or a large number of consuming devices, a secondary power supply (DDNP1501) can be added to boost the overall network voltage. The DDNP1501 can supply 15 Vdc at 1 .5 A.

Generally, most Philips Dynalite load controllers generate approximately 100 mA to the DyNet network and will drive 4 or 5 consuming devices without the need for a secondary power supply. Refer to the product data sheets for calculation the power requirement for the Dynet communication bus.

It is important to note that all Cat 5 cables used to build the DyNet network have a maximum current capacity of 2 A.

Keep that in mind so that the network is designed in such a way that it does not exceed this rating.

Furthermore, it is recommended that the connections to the devices are limited to only GND, D+ and D- to avoid exceeding the 2 A cable limit.

**Wired controllers**

The specifications of each controller type limit the number of luminaires that can be connected. Refer to the product data sheets for detailed information. The given limitations:

**DDBC1200**

- 12 control outputs, selectable to DALI, 0-10 V/1-10 V or DSI output capacity
- In DALI Broadcast mode: 80 DALI drivers per channel, 300 total

**DDBC120-DALI**

- Single DALI control output, supporting one full DALI universe of 64 addresses
- One feed-through relay rated at 20 A (500 A surge) for switching power to the drivers

**DDBC300-D**

- Three DALI outputs, allowing to control up to 192 DALI devices

**DDBC320-DALI**

- Three DALI outputs, allowing to control up to 192 DALI devices
- Three feed-through switched circuits rated at 20 A for DALI driver mains supply

**DDRC420FR**

- Four switched feed-through outputs at 20 A (inductive), maximum device load 80 A
- Rated inrush current: 500 A

**DDRC1220FR-GL**

- 12 switched feed-through outputs at 20 A (inductive), maximum device load 180 A
- Rated inrush current: 500 A

**DDMIDC8**

- Eight digital inputs that can used as a dry contact input
- Inputs optically isolated for high noise immunity

## 3.3 System wiring

### 3.3.1 Cable limits

**DyNet cable length**

- The number of Philips Dynalite devices per Cat 5 cable is limited to 100.
- The maximum Cat 5 cable length between the devices is 100 m.

**DALI cable cross sections**

The maximum voltage drop on the DALI bus is 2 V. Therefore, use cables with the specifications according to the table. DALI cables of over 300 m (1000 ft) are not allowed.

**DALI conductor diameter**

| Length | | Cross section | |
|---|---|---|---|
| ≤ 100 m | ≤ 330 ft | 0.5 $mm^2$ | AWG 20 |
| 100 to 150 m | 330 - 500 ft | 0.75 $mm^2$ | AWG 18 |
| 150 to 300 m | 500 - 1000 ft | 1.5 $mm^2$ | AWG 16 |

**Ethernet cable length**

The length of the Ethernet cables is limited to 100 meter per run.

**Built-in dry contacts**

The maximum distance to the input source depends on the type of connection and the device used to create the connection. For the DDMIDC8, the length of the cable runs must not exceed 50 m. This enables convenient connection to dry contact interfaces in multiple places.

### 3.3.2 Physical connection testing

The controllers used in the Store system have manual override buttons, which will help the commissioning engineer to confirm the correct physical power connection. Control protocol tests can only be performed with System Builder as a tool, or on the mobile device, by moving the sliders in the Scenes page for each channel. Refer to the respective product installation guides for correct test procedures.

# 04 Installation and commissioning


4.1 Installation and checklist

4.2 Project template and checklist

4.3 Firmware update of the Gateway

# 04 Installation and commissioning

## 4.1 Installation and checklist

To install the luminaires, the following items are required:

- Luminaires
- Mounting brackets (if applicable, packed with the luminaires)
- Mains cables, DALI and 0-10 V/1-10 V compatible wiring
- Lighting plan

**Note**

Although the voltage on DALI or 0-10 V/1-10 V wires is low (typically 16 V or 10 V), the system is only provided with basic isolation, therefore the DALI control wires must be treated as mains wires. Any mains-voltage rated wire or cable can be used, however the diameter of the conductor is important. See section 3.3.1 Cable limits.

## 4.2 Project template and checklist

The following information, equipment and materials must be available:

- All store information relevant for the installation and configuration process (as agreed earlier between the Signify representative and store owner/manager)
- Project template file including the store lighting plan and area configuration
- Load controllers
- DyNet network cable
- Cat 5 cable or better
- Sensors (depending on the project need)
- Latest Site Gateway (PDDEG-S) firmware
- A computer with latest version of System Builder running

### 4.3 Firmware update of the Gateway

Before or during commissioning, make sure the PDDEG-S is updated to the latest firmware version.
The PDDEG-S is running the control software for the:

a. Authentication type
b. Schedule creation
   - Create dummy schedules
   - Create Special Events
c. Setting Date and Time
d. Metric creation for system status
e. User type differentiation
f. Astronomical clock

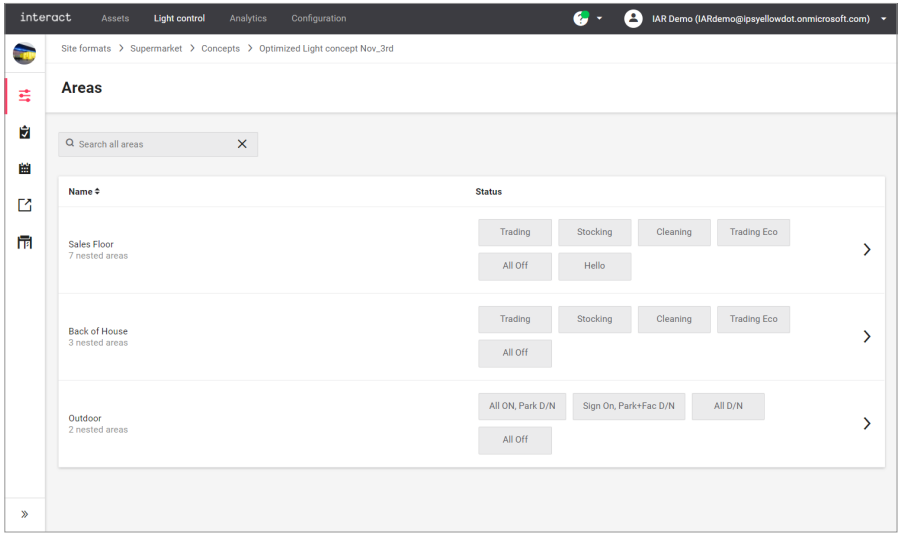
Refer to the *Architecture FLX - Multisite Commissioning Guide* for the procedures to upgrade the firmware and implementation of the UI. This document can be found on the Signify Partner Portal.

# 05 Use of the interfaces

5.1 Usage of the cloud UI (dashboard)

5.2 Usage of the local manual override

# 05 Use of the interfaces



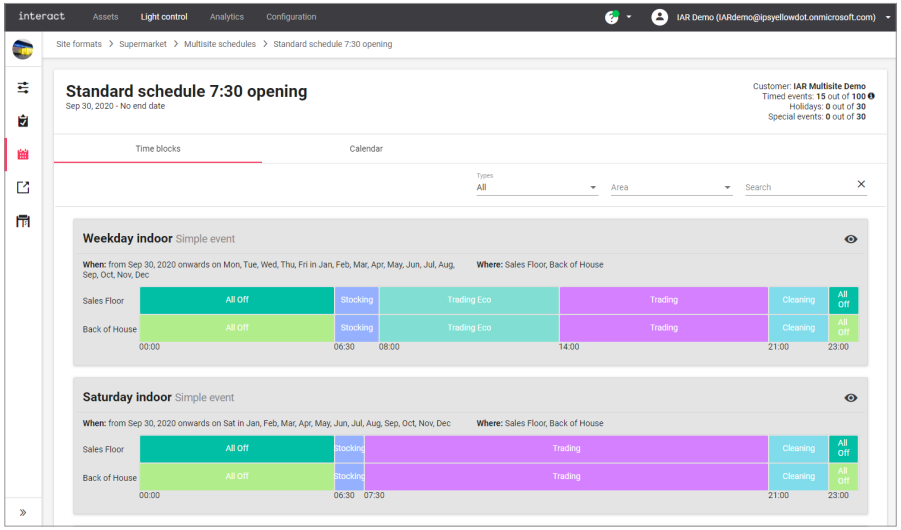

## 5.1 Usage of the cloud UI (dashboard)

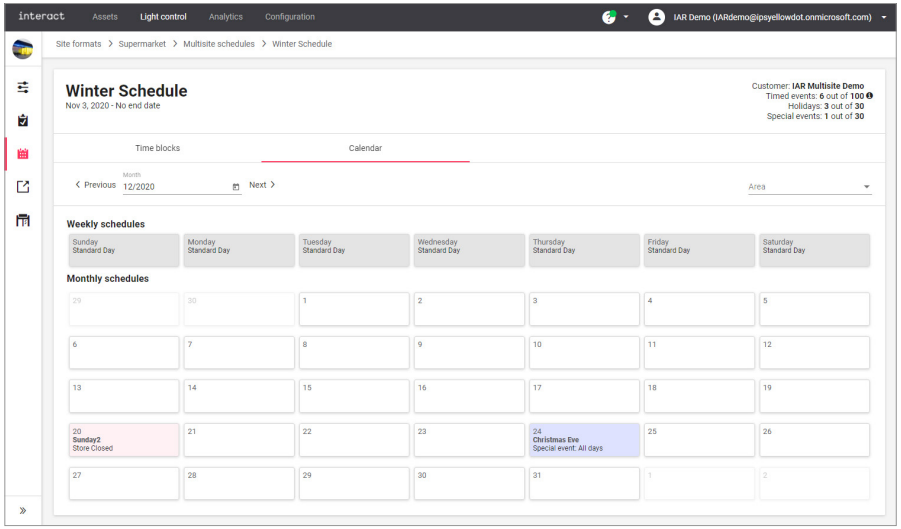
The user interface is easy to access via a web browser. To access the user interface, the Site Gateway (PDDEG-S) needs to be connected to the cloud and deployed.

Go to www.eu.retail.interact-lighting.com and provide your user credentials to log in.

### 5.1.1 Scenes

A scene represents the lighting level of dimmable and switchable areas. Depending on the requirements on the site, the dimmable areas can be set up with the required light levels of the areas and switched On/Off by the relay channels.




### 5.1.2 Schedules

The schedule is the timetable for the site, representing the work hours of the personnel in the store; it shows how lighting scenes will be processed over a period of 7 days.

The calendar shows an overview on which day a schedule runs.

## 5.2 Usage of the local manual override

Sites are equipped with a Touch screen and/or Antumbra User Interface for manual preset selection and local manual override.

Tip

See the Interact system for Retail specifier pages on the internet for more information about the different user interface options.

# 06 Product details information

6.1 Software

6.2 Terms and conditions

6.3 Service Level Agreement (SLA)

# 06 Product details information

The Multisite system comprises different components of Dynalite. Each individual device has its own data sheet and installation instructions. Please refer to www.partner.portal.signify.com.
Access to the Signify Partner Portal requires a username and password.

## 6.1 Software

Interact Multisite System Manager uses open-source packages. Please refer to www.eu.retail.interact-lighting.com/LICENSES.txt for list of the used packages with their licenses.

## 6.2 Terms and conditions

Refer to the following URLs for terms and conditions on using software and packages provided by Signify.

- Terms of Software Services
  www.signify.com/toss
- Interact Account Terms of Use
  www.signify.com/global/legal/digital-terms
- Privacy Notice
  https://www.signify.com/privacynotice

## 6.3 Service Level Agreement (SLA)

To be updated soon.

# Appendix A – System components

IT and lighting network components

User interfaces

Optional components

# Appendix A – System components

## IT and lighting network components

### Gateway

**LCN5320/LCN5321 Indoor 4G router**
For the Signify Connectivity Service, Signify delivers a 4G router that is configured for installation at the site of the customer.

The 4G router requires the LCN5323 12 Vdc power supply.

**PDDEG-S Ethernet Gateway**
The Philips Dynalite PDDEG-S provides gateway services between Ethernet and DyNet devices, enabling secure online access to the lighting control system.

The gateway enables lighting control via the Philips Dynalite System Enabler app and Interact Multisite System Manager.

**Important**
The PDEG Ethernet Gateway is not compatible for use in Multisite system installations.

# Appendix A – System components


**Components wired topology**

**DDBC120-DALI DALI-2 Driver controller**
The Philips Dynalite DDBC120-DALI delivers cost-effective control of DALI drivers through provision of a full universe of 64 DALI drivers. The device communicates seamlessly with Philips Dynalite DALI sensors and user interfaces.

**DDBC300-D 3 Universe DALI controller**
The DDBC300-DALI delivers cost-effective control of DALI high frequency fluorescent drivers through provision of three full universes totaling 192 DALI addresses.

# Appendix A – System components



**DDBC320-DALI DALI-2 Driver Controller**
The Philips Dynalite DDBC320-DALI features three DALI outputs, allowing control of up to 192 DALI devices. It also features 3 x 20 A feed-through switched circuits for DALI driver mains supply.

**DDBC1200 Signal dimmer controller**
The Philips Dynalite DDBC1200 features 12 independent output channels, each selectable to DALI Broadcast, 0-10 V/1-10 V or DSI. The device can also be linked to a separate relay module for control of 0-10 V/1-10V drivers.

# Appendix A – System components


**DDRC420FR Relay controller**

The Philips Dynalite DDRC420FR provides control of any type of switched load. This four-channel device supports all types of switched loads up to 20 A inductive.


**DDRC1220FR-GL Relay controller**

The Philips Dynalite DDRC1220FR-GL provides control of any type of switched load. All types of switched loads up to 20 A inductive are supported. The maximum load may be limited by 500 A inrush rating.

# Appendix A – System components

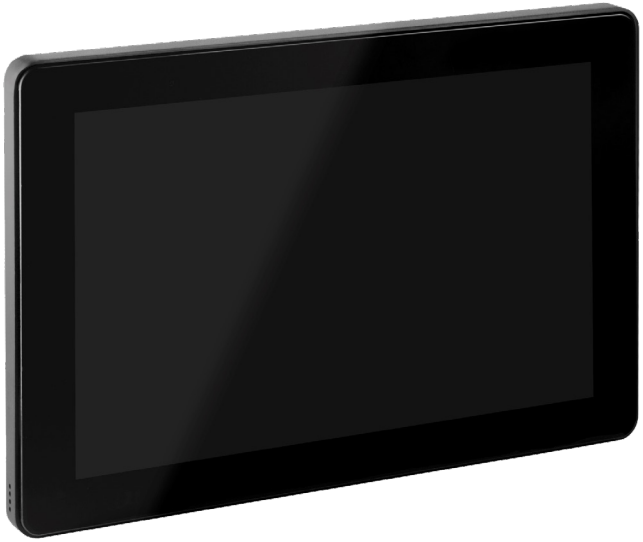
**DDMIDC8 Dry contact connections**

Dry contact connections allow installation in electrical wall boxes for easy integration with third-party user interfaces. With this option it is possible to integrate security systems with the lighting system, by receiving input from the security system and run a special task according to the requirements. Multiple DDMIDC8 devices can be used in the system to add more dry-contact inputs required in a project.

**DDNG485 RS-485/DMX512 Gateway**

The Philips Dynalite DDNG485 is a flexible network communications bridge designed for RS-485 networks. The two opto-isolated RS-485 ports enable the DDNG485 to implement a trunk and spur topology on large project sites, with the bridge providing a high-speed backbone opto-coupled to many lower speed spurs.

# Appendix A – System components



## User interfaces

**PDTS Touch screen**
The PDTS offers intelligent control and direct access to scheduling, scene editing, diagnostics and local environmental sensing.

**PAxPA/E Antumbra**
The Philips Antumbra series provide a wide range of flexible user interfaces, incorporating the latest in field effect technology. The contemporary design features several button configurations, with each button capable of local or site-wide control functions.

# Appendix A – System components


## Optional components

### Sensors

**DUS360CR Multifunction sensor**
The Philips Dynalite DUS360CR is a recess mountable 360 degrees multifunction sensor that combines motion detection (PIR), infrared remote-control reception (IR) and ambient light level detection (PE) into one device in multiple applications.

**DDNP1501 Network Power Supply**
The Philips Dynalite DDNP1501 is a 15 V DC 1.5 A regulated power supply designed to supplement the DyNet network DC supply.

# Appendix B – Roles and responsibilities

Signify and partner roles

Customer and service provider roles

# Appendix B – Roles and responsibilities

## Signify and partner roles

| Activities / Roles | Operations (Signify only) | Contractor | Light Designer | Controls Designer | Commissioning engineer |
|---|---|---|---|---|---|
| Operations (Customer management/System updates) | ✓ | | | | |
| User management (e.g. workorders, etc.) | ✓ | ✓ | | | |
| Lighting design | | | ✓ | | |
| Controls design | | | | ✓ | ⊖ |
| Site commissioning | | | | | ✓ |
| Assets and health | ✓ | | | | ✓ |
| Emergency lighting test (Configuration and Schedules) | ✓ | | | | ✓ |
| Light control (Concepts and Schedules) | ✓ | | | | ✓ |
| Configuration (Design) | ✓ | | | ✓ | |
| Energy monitoring | ✓ | | | | |

Explanation of the symbols

✓ Possible

⊖ For validation purposes

# Appendix B – Roles and responsibilities

## Customer and service provider roles

| Activities / Roles | Facility manager | Format manager | Store manager |
|---|---|---|---|
| User management (e.g. workorders, etc.) | ✓ | | |
| Assets and health | ✓ | ✓ | |
| Emergency lighting test results | ✓ | | |
| Light control (Concepts and Schedules) | ✓ | ✓ | ⊖ |
| Configuration (Design) | ✓ | | |
| Energy monitoring | ✓ | ✓ | |
| Handover to end user | ✓ | ✓ | |

Explanation of the symbols

✓ Possible

⊖ Local override only

Learn more about Interact

**www.interact-lighting.com**



R01, 16 December 2024

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