Signify

Dynalite

Single System Architecture

Set-Up Guide

Single System Architecture

Contents

Speed up your lighting control design and installation

Introducing the DDC116-UL, the heart of the Dynalite SSA (Single System Architecture) lighting control solution. The system empowers electrical installers to create lighting control functionality quickly and easily with DIP switches and button settings. Out of the box, the system supports 0–10 V dimming and is reconfigurable to DALI broadcast dimming, making this solution future-proof.

The system enables customers to configure different areas and network specific devices together for code-compliant lighting control functionality without requiring commissioning software. Optionally, customers can use System builder commissioning software to configure the DDC116-UL in a larger networked system enabling features such as, scheduling, centralized control and BACnet integration.

System features

High capacity switching relay

16 A lighting load.
20 A general load (plug load).

Suitable for plenum use

UL 2043 and Chicago rated for installation in air-handling plenum spaces. Fits into standard junction box housings.

Dry contact input

For UL 924 emergency or auxiliary input.

Universal voltage

100–277 VAC.

Choice of control protocol

Can be controlled via DyNet or DMX512.*

Easy to install

Plug in RJ45 sockets and push-down terminals.

Flexible

Control 0–10V 100 mA Sink or Source and DALI broadcast including Tunable White and RGBWAF drivers.**
Guaranteed current 100 mA, Maximum 250 mA loads.

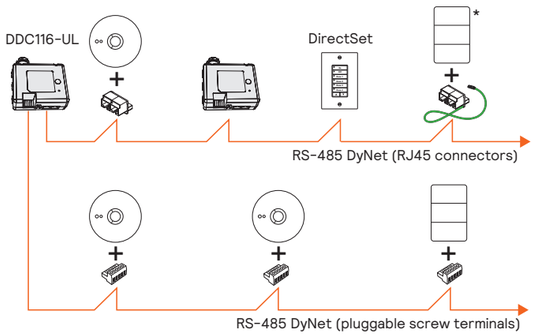
Daisy chained devices

Connect additional controllers and other SSA devices using dual RJ45 connectors or wire to spring terminals.

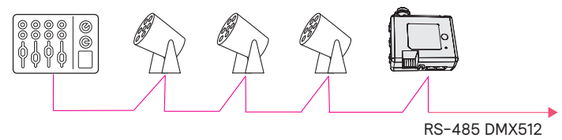
Standalone or networked

Standalone control of up to five lighting zones plus plug load. Can be networked for even larger projects.

DyNet networking



DMX512 networking†



* When connecting Antumbra user interfaces via RJ45, the DACM-DINGUS-RJ45 Earth wire must be joined to the metal mounting plate Earth wire to prevent proximity sensor false triggering.

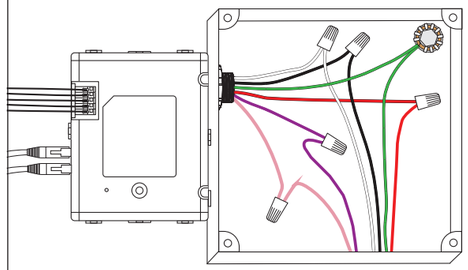
** System Builder is required to set the logical channel type for Tunable White and RGBWAF DALI drivers.

† System Builder is required to change the controller's DMX512 address.

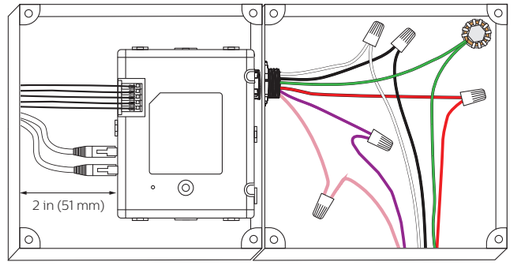
Flexible mounting solution

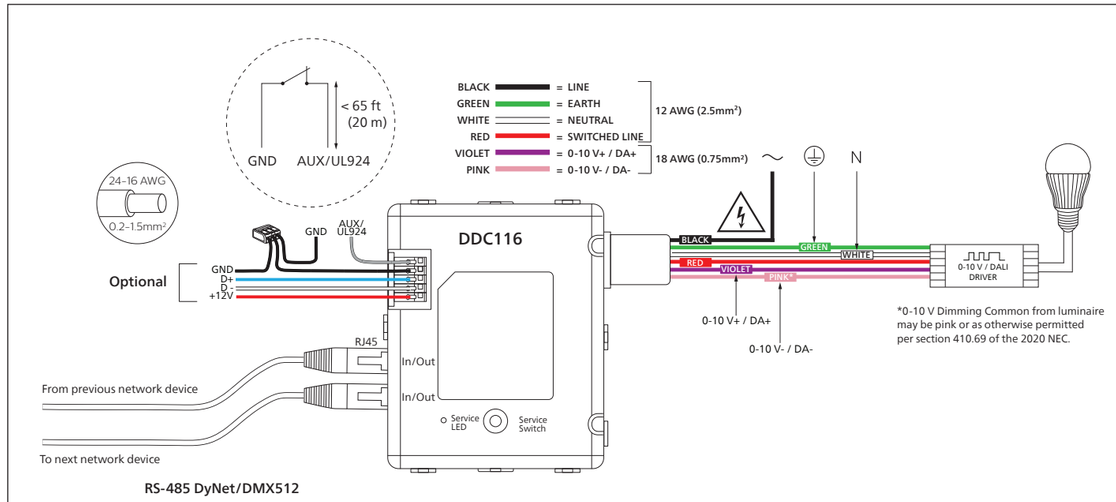
The compact plenum-rated design is compatible with standard junction box wiring schemes, reducing your installation effort and project costs.

UL 2043 Plenum-rated



Chicago Plenum-rated





RS-485 DyNet/DMX512

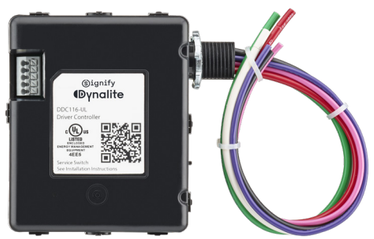
- AUX/UL924 default is Normally Closed (Open = Active).
- Please remove jumper wire between GND and AUX/UL924 terminals if connecting to emergency or other system.
- For DMX512, add a 120 Ohm, 0.5 W termination resistor across D+ and D- on the last DMX512 device.

Installers are empowered to provide a complete service by setting the lighting control functionality.

Lighting controls made simple

Single System Architecture components

DDC116-UL



DSxA-DirectSet User Interface Range

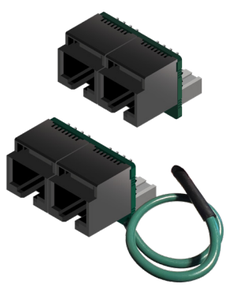
PAxBPA-SSA

DACM-DyNet-SSA

DUS360CR-DA-SSA

DUS804CS-UP-SSA (O or V)

DUS-DINGUS-RJ45 and DACM-DINGUS-RJ45



Installer-configured devices

DDC116-UL – Single zone 0-10 V/DALI broadcast and relay controller.

DSxA – DirectSet User Interface Range Versatile preconfigured DyNet wall stations with 8 layouts.

PAxBPA-SSA – 2, 4 or 6-button wall stations with seven labeling options.

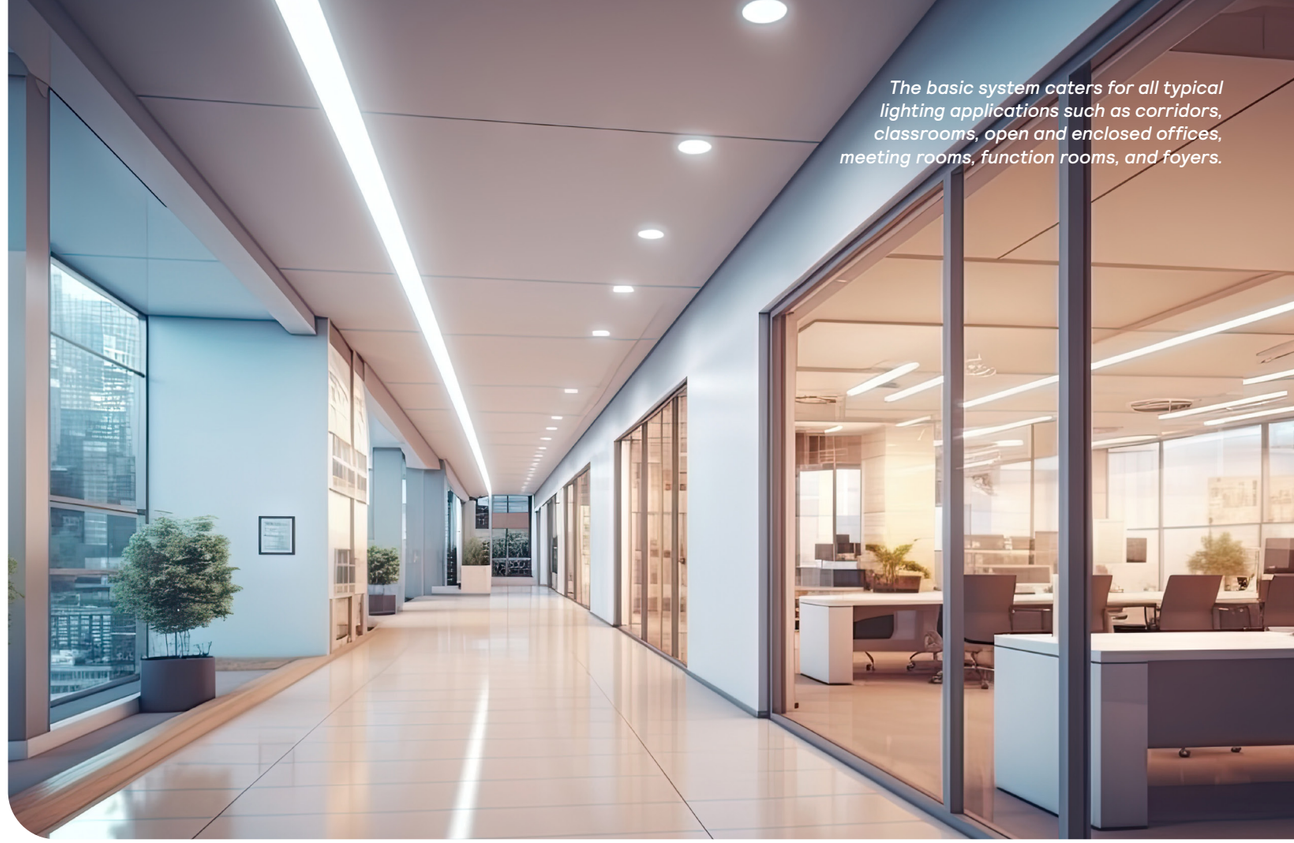
DACM-SSA – User interface communication module with 15 configurations.

DUS360-DA-SSA – PIR motion and daylight sensor with configurations selectable via DIP switches

DUS804CS-UP-SSA – Ultrasonic motion (occupancy or vacancy).

DUS-DINGUS-RJ45 and DACM-DINGUS-RJ45 Quick connections between different wall stations and sensors.

For more information about installation, refer to individual device installation instructions.



The basic system caters for all typical lighting applications such as corridors, classrooms, open and enclosed offices, meeting rooms, function rooms, and foyers.

Available functionality

Sensors

- Configurable between Occupancy mode (default) or Vacancy mode.
- Choice of passive infrared or ultrasonic motion detection.
- Configurable timeouts of 5, 10, 15, and 20 minutes (default).
  - 1 minute grace period on all timeouts.
  - 1 hour witness mode to test functionality.
- Built-in daylight harvesting.
- Flexibility to activate primary and secondary daylight zones.

Occupancy mode – Lights and plug loads turn on when there is motion and turn off after the timeout period if there is no motion.

Vacancy mode – Lights are manually turned on from the switch and turn off after the timeout period if there is no motion. Plug loads automatically turn on and off when motion/no motion is detected.

Primary daylight zone – The window zone directly under the sensor.

Secondary daylight zone – The zone farther away from the window with a 20% brighter offset.

Wall stations

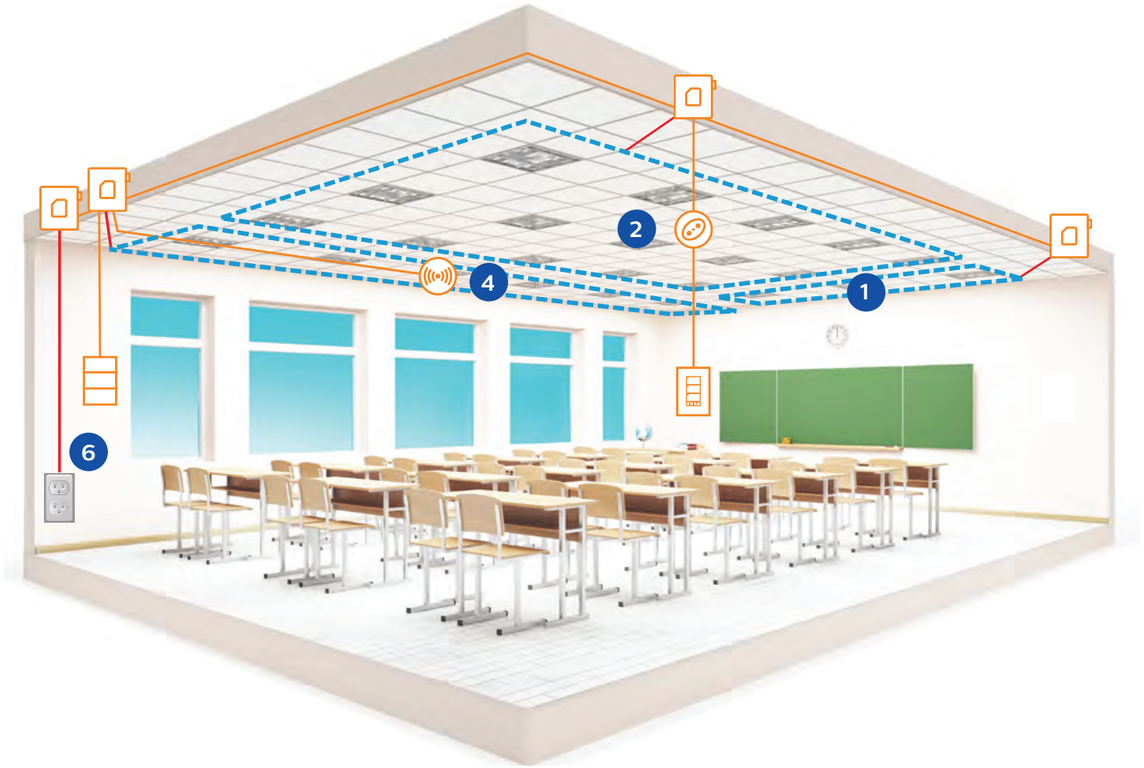
- Control one or all five lighting zones and plug load zone.
- Recall preset lighting scenes.
- Simple intuitive buttons.
- Ramping buttons only affect zones that are on.

Load controllers

The SSA is oriented around the DDC116-UL's configurability via its network sign-on button (service switch) without requiring computer-based commissioning tools. This simplifies the activation process, saving commissioning costs and labor charges. Multiple DDC116-ULs can be connected into a single system to meet the needs of a single area with multiple lighting groups, daylight harvesting zones, and plug loads.

The internal relay saves power by automatically switching off the circuit when lighting loads are dimmed to zero.

System example
– classroom application



DDC116-UL Single Zone Controller

DUS360CR-SSA Sensor – Daylight

DUS804CS-SSA Sensor– Occupancy

DirectSet DS3SRA-W-DN

Antumbra 6-Button Station

Switching and dimming zone output

0-10 V and switched lines

RS-485 DyNet

Floor Zones

1. Screen/Presentation zone (default)
2. Generic Lighting Primary Zone
4. Generic Lighting Primary Daylight Zone
6. Plug load

Step 1

Assigning a DDC116-UL to the right zone

Setting up Single System Architecture devices

In three steps, you can directly set up devices to harness the power of lighting control.

Configuring the controller

Assign the controller to one of the six zones with simple push-button actions.

Service switch functions

1 short push – Send network ID

3 short pushes – Set lights to 100%

4 short pushes – **Test mode** (LED blinking pattern changes and lights flash for 5 minutes)

- 1 short push – Toggle control type between 0-10 V (Red LED) and DALI Broadcast (Green LED).
- Push and hold for 4 seconds – Save control type and exit Test Mode.

Push and hold for 4 seconds – **Program Mode** (Blue LED flash count indicates the controller zone assignment).
Program Mode times out after 30 seconds of inactivity, discarding changes.

- Short push – Cycle through zone numbers (after each push, the flash count indicates the controller zone assignment).
  Zone 1 = Screen/Presentation Zone (default)
  Zone 2 = Generic Lighting Primary Zone
  Zone 3 = Generic Lighting Secondary Zone
  Zone 4 = Generic Lighting Primary Daylight Zone
  Zone 5 = Generic Lighting Secondary Daylight Zone (20% brighter)
  Zone 6 = Plug Load Zone
- Push and hold for 4 seconds – Save changes and exit Program Mode. The device reboots and is ready to start work!

Service LED indications

- Red: Output type = 0-10 V.
- Green: Output type = DALI Broadcast.
- Slow: 1 flash per second when device is idle.
- Medium: 2 flashes per second when DyNet bus is busy.
- Emergency mode active: 2 flashes per second alternating red and blue.
- Fast: 3 flashes per second when a message is addressed to the controller.

Step 2

Configuring a sensor

DIP switches

Projects can choose between a PIR or dual-technology PIR and ultra-sonic motion sensor. Ultrasonic sensors are available in occupancy or vacancy mode. Timeouts can be set for specific projects and multiple sensors can be used together to cover larger areas*. The inbuilt light sensor on the PIR sensor can also be used for daylight-based dimming (daylight harvesting).

DUS360CR-DA-SSA Settings (default)

1. Motion sensor mode

Vacancy mode
Manual on from station and Auto off after timeout

Occupancy mode
Auto on with occupancy and Auto off after timeout

2. Light level sensor

Enabled

Disabled

3. Daylight zone minimum level, if SW 2 is on

Lighting will dim to 0%

Lighting will dim to 20%

4 & 5. Timeout

20 Min

15 Min

10 Min

5 Min

6. Auto-on level if SW 1 is on

Ramp lighting to 90%

Ramp lighting to 50%

7. Reserved

8. Witness mode

Reduce timeouts by 90% for 1 hour

Normal operation

DUS804CS-UP-SSA-O/V Ultrasonic Settings

20 minute default timeout or inherits timeout settings from DUS360CR-DA-SSA if used together.*

Two different control strategies available:
Occupancy mode response – Auto on & Auto off.
Vacancy mode response – Manual on & Auto off.

*Inherited settings will be lost on power cycle if the other sensor is removed.
Note: Ultrasonic sensors must be placed at least 60ft (18 m) apart to avoid interacting with each other.

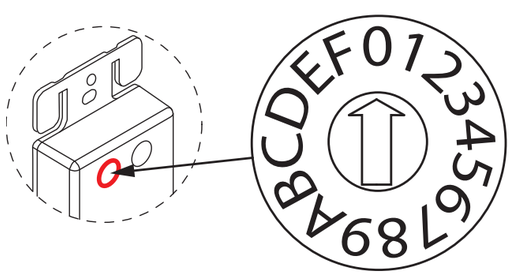
Step 3A

Configuring a DirectSet wall station

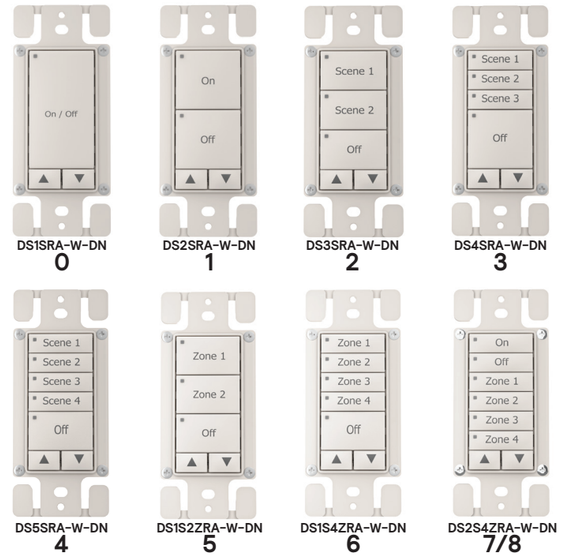
Built-in dual RJ45 ports provide hassle-free wiring termination, while the familiar single-gang form factor ensures seamless installation. Preloaded with multiple button layouts from three to eight buttons, selectable via easily accessible rotary switches, each panel features standard labeling and supports all common functions including on/off, dimming, and preset selection.

Note: Faceplate not included. DirectSet can be installed with almost any Decora/Decorator or GFCI cut-out faceplate. Test the plate fit and panel operation before finalizing installation.

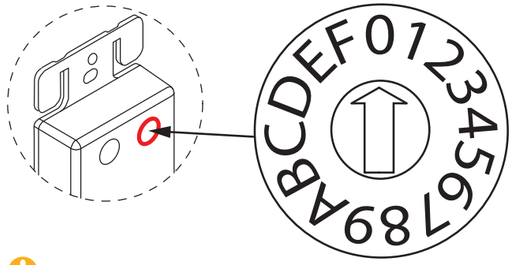
Button layouts



Switch 0–8



Channel/Zone Selection



Switch
0 = All Zones
1–5 = Zones 1–5

Matches DDC116-UL zones 1–5

Step 3B

Configuring an Antumbra wall station (DACM)

DIP switches

15 Station configurations

Set the DACM DIP switches to select your required button functions.

4-Button Options

PA4BPA-WW-L-SSA-onoff-ramp

0. All zones – On/Off/Raise/Lower

1. Zone 1 – On/Off/Raise/Lower

2. Zone 2 – On/Off/Raise/Lower

3. Zone 3 – On/Off/Raise/Lower

4. Zone 4 – On/Off/Raise/Lower

5. Zone 5 – On/Off/Raise/Lower

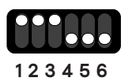
6-Button Options

PA6BPA-WW-L-SSA-preset-ramp

6. All zones – On/Off/Medium/Low/Raise/Lower

PA6BPA-WW-L-SSA-AV-ramp

7. All zones – On/Off/AV/Present/Raise/Lower



PA6BPA-WW-L-SSA-AV-present

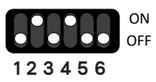
8. All zones – On/Off/Medium/Low/AV/Present

PA6BPA-WW-L-SSA-2Z

9. All zones + 2 dedicated zones – On/Off

PA6BPA-WW-L-SSA-3Z

10. 3 dedicated zones – On/Off



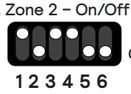
2-Button Options

PA2BPA-WW-L-SSA-onoff

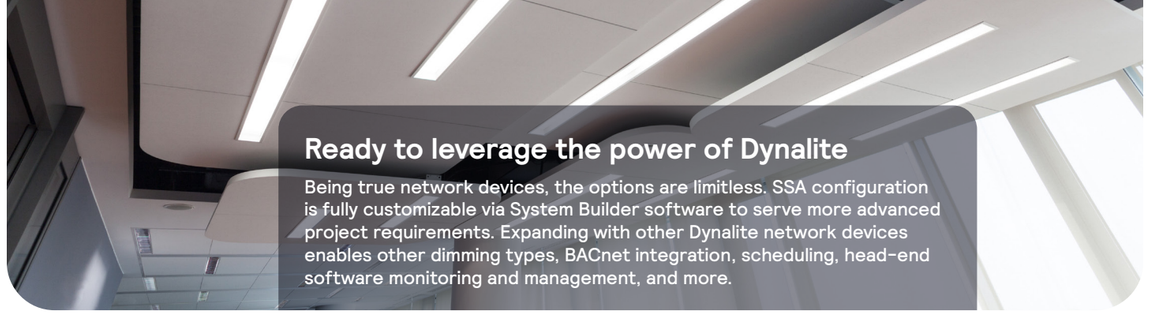
11. All zones – On/Off

12. Zone 1 – On/Off

13. Zone 2 – On/Off



14. Zone 3 – On/Off



Ready to leverage the power of Dynalite

Being true network devices, the options are limitless. SSA configuration is fully customizable via System Builder software to serve more advanced project requirements. Expanding with other Dynalite network devices enables other dimming types, BACnet integration, scheduling, head-end software monitoring and management, and more.

Ordering codes - Single System Architecture

Dynalite part code	Description	12NC
DDC116-UL	1 x 0-10 V or DALI broadcast controller with switched power output.	913703376709
DUS360CR-DA-SSA	PIR motion and PE light sensor preprogrammed for Occupancy or Vacancy.	913703389909
DUS804CS-UP-SSA-O	Ultrasonic motion, PIR motion sensor preprogrammed for Occupancy.	913703662809
DUS804CS-UP-SSA-V	Ultrasonic motion, PIR motion sensor preprogrammed for Vacancy.	913703662909
DACM-DyNet-SSA	User Interface comms module preprogrammed for Single System Architecture.	913703668809
PA4BPA-WW-L-SSA-onoff-ramp	Antumbra 4 Button NA White finish (On/Off/Raise/Lower). Configurations 0-5.	913703253109
PA6BPA-WW-L-SSA-preset-ramp	Antumbra 6 Button NA White finish (On/Off/Medium/Low/Raise/Lower). Configuration 6.	913703253209
PA6BPA-WW-L-SSA-AV-ramp	Antumbra 6 Button NA White finish (On/Off/AV/Present/Raise/Lower). Configuration 7.	913703253309
PA6BPA-WW-L-SSA-AV-present	Antumbra 6 Button NA White finish (On/Off/Medium/Low/AV/Present). Configuration 8.	913703253409
PA6BPA-WW-L-SSA-2Z	Antumbra 6 Button NA White finish (On/Off/Master + Two zones). Configuration 9.	913703253509
PA6BPA-WW-L-SSA-3Z	Antumbra 6 Button NA White finish (On/Off/3 zones). Configuration 10.	913703253609
PA2BPA-WW-L-SSA-onoff	Antumbra 2 Button NA White finish (On/Off). Configurations 11-14.	913703253709
D-DUS-DINGUS-RJ45-QTY10	Suited to DyNet Sensors – 2 x RJ45 sockets, pack of 10	913703254609
D-DACM-DINGUS-RJ45-QTY10	Suited to DyNet DACM plug – 2 x RJ45 sockets, pack of 10	913703254809
DS1SRA-W-DN	DirectSet Configuration 0: 1 Scene & Ramping	913703410209
DS2SRA-W-DN	DirectSet Configuration 1: 2 Scene & Ramping	913703410309
DS3SRA-W-DN	DirectSet Configuration 2: 3 Scene & Ramping	913703410409
DS4SRA-W-DN	DirectSet Configuration 3: 4 Scene & Ramping	913703410509
DS5SRA-W-DN	DirectSet Configuration 4: 5 Scene & Ramping	913703410609
DS1S2ZRA-W-DN	DirectSet Configuration 5: 1 Scene + 2 Zones & Ramping	913703410709
DS1S4ZRA-W-DN	DirectSet Configuration 6: 1 Scene + 4 Zones & Ramping	913703410809
DS2S4ZRA-W-DN	DirectSet Configuration 7/8: 2 Scene + 4 Zones & Ramping	913703410909

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