



H. E. WILLIAMS, INC.



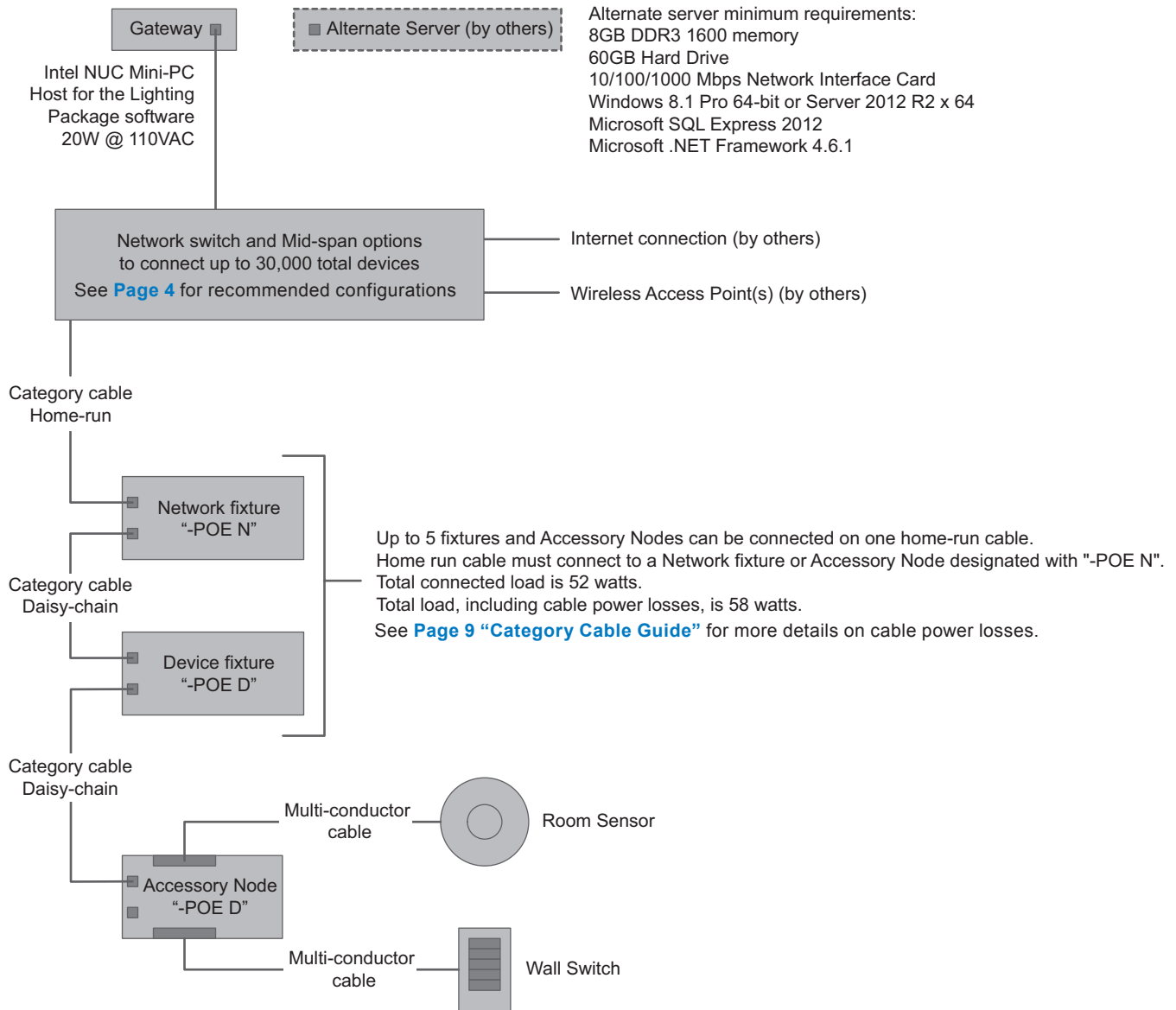
POWER OVER ETHERNET

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Example



Ordering Information



GATEWAY

Example: GATEWAY					
DESIGNATOR	MODEL #		DESCRIPTION	MOUNTING	INPUT POWER
GATEWAY	NUC7iBNK	Intel	Mini PC, with Lighting Package software installed, ready for use as web server to run Lighting Package, peripherals not included	Desktop, cabinet	20W
FBO	Furnished by others		Alternate server minimum requirements: <ul style="list-style-type: none"> ▪ 8GB DDR3 1600 memory ▪ 60GB Hard Drive ▪ 10/100/1000 Mbps Network Interface Card ▪ Windows 8.1 Pro 64-bit or Server 2012 R2 x 64 ▪ Microsoft SQL Express 2012 ▪ Microsoft .NET Framework 4.6.1 		

LICENSE SIZE

Lighting package software one-time license required per installation.
For installations greater than 1,000 devices, consult factory.

100	Up to 100 devices
500	101 – 500 devices
1000	501 – 1,000 devices



GATEWAY

The Gateway is a special purpose hardware processor that is the core of the Williams Power-over-Ethernet lighting control system. Each Gateway is designed to manage an entire building.

- ▶ Maximize occupant comfort and minimize energy costs.
- ▶ Numerous energy optimization strategies
- ▶ Connects to Cloud Portal Services
- ▶ Simple tools reduce setup and management time dramatically

LIGHTING SYSTEM SOFTWARE

Required one-time license, see [page 3](#) for Software & Service Packages details.

- ▶ Supports lights, wall controls (on/off & dimmers), motion sensors, & light sensors
- ▶ Lighting automation engine
- ▶ Rapid-commissioning & diagnostic tools
- ▶ Occupancy control, high & low end trimming, & daylight harvesting (software defined)
- ▶ Lighting action sets, scheduling, & policies



Ordering Information



SOFTWARE PACKAGE

Example: POE-S1C			
DESIGNATOR	SOFTWARE PACKAGE	DURATION	DESCRIPTION
POE-S1C	Connectivity	One-time license	<ul style="list-style-type: none"> ▪ API access & test suite ▪ Mult-IP network binding management
POE-S1BA	Building Automation Access	One-time license	<ul style="list-style-type: none"> ▪ Supports temperature sensors ▪ Accepts BACnet commands & inquiries
POE-S1S	Service	Annual subscription	<ul style="list-style-type: none"> ▪ Near real-time system monitoring ▪ System status, analytics, statistics, & dashboards (via cloud portal) ▪ Advanced multi-recipient email alerts for critical system status (via cloud portal) ▪ Daily backups of configuration (via cloud portal) ▪ Access to Igor Site Manager minor version updates (via cloud portal)
POE-S1AE	Advanced Energy	Annual subscription	<ul style="list-style-type: none"> ▪ Requires Service Package ▪ Energy data repository (via cloud portal) ▪ Energy analytics, statistics, dashboards, & interactive reports (via cloud portal)
POE-S1EP	Enterprise Management	Annual subscription	<ul style="list-style-type: none"> ▪ Requires Service Package ▪ Multi-site enterprise performance and service dashboards (via cloud portal) ▪ Advanced log dashboard & analyzer (via cloud portal) ▪ Multi-user/role cloud portal logins

All software packages include:

- Browser-accessible HTML management interfaces
- Device groups
- Automatic discovery
- Device identification

LIGHTING SYSTEM SOFTWARE

Required one-time license, see [page 2](#) for Ordering Information.

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Ordering Information



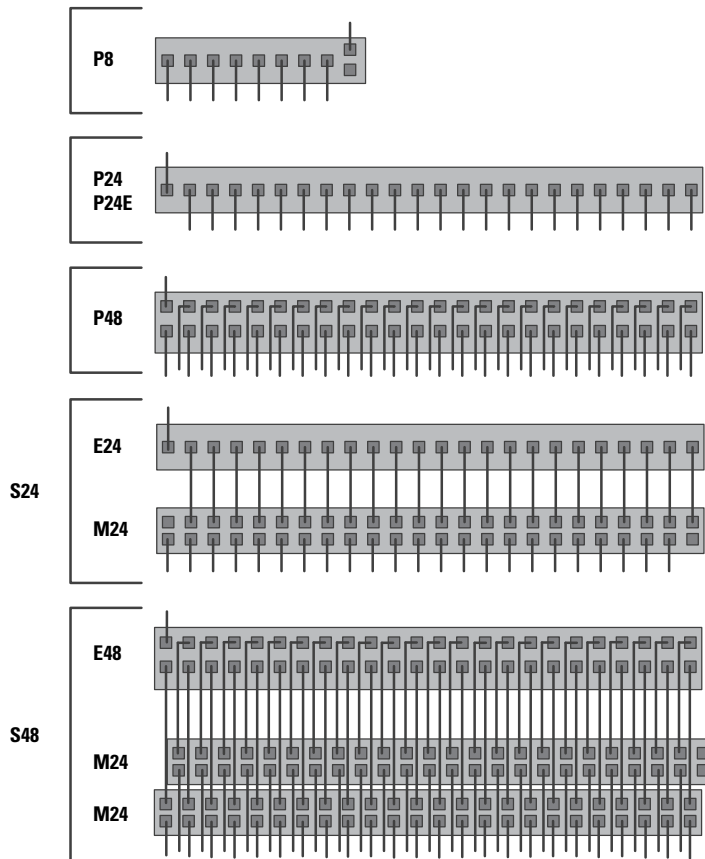
SWITCHES & MID-SPANS (Furnished by others)

See [page 5](#) for compatible sensors & switches

Example:P8						
DESIGNATOR	MODEL #		DESCRIPTION	MOUNTING	TOTAL PoE POWER	INPUT POWER
P8	CDB-8-U	Cisco	8 port PoE Switch, 120-277VAC	Open, plenum, rack	440W	600W
P24	CDB-3850-24U-L	Cisco	24 port PoE Switch, 120-240VAC	Rack	1440W	1815W
P48	CDB-3850-48U-L	Cisco	48 port PoE Switch, 120-240VAC	Rack	1800W	2200W
S24			(1) E24 and (1) M24			
S48			(2) M24 and (1) E48			
P24E	SF300-24P-K9-NA	Cisco	24 port PoE Switch (EM feeds only), 7.5W per port	Rack	180W	28W
E24	SF300-24-K9-NA	Cisco	24 port Ethernet Switch (data only), 120-240VAC	Rack	–	18W
E48	SF300-48-K9-NA	Cisco	48 port Ethernet Switch (data only), 120-240VAC	Rack	–	25W
M24	PD-9524G/ACDC/M	Microsemi	24 port Mid-span power injector (power only), 120-240VAC	Rack	930W	1560W

Recommended Configurations

See [Page 1](#) for Lighting System Diagram.



Ordering Information

EXAMPLE

P-ACC - **OPTIONS** - **POE D**

SERIES

OPTIONS/
ACCESSORIES

CONTROL

SERIES

P-ACC PoE Accessory Node for connection of buttons, sensors, and other room control devices to PoE lighting system.

OPTIONS

Only one occupancy sensor available per node.
Each node may carry up to 5 wall switch buttons,
Example: SW2-SW3.

A11 Daylight sensor 0-10VDC input
A12 Temperature sensor 0-10VDC input
A13 Custom sensor 0-10VDC input
A14 Custom sensor 0-10VDC input
RL1 Relay control output, momentary, 24VDC@150mA
RL2 Relay control output, momentary, 24VDC@150mA
OCC1 Dry-contact motion sensor input
OCC2 24VDC active-high motion sensor input
SW1 1-button wall switch
SW2 2-button wall switch
SW3 3-button wall switch
SW4 4-button wall switch
SW5 5-button wall switch

CONTROL

For additional PoE info, see hew.com/poe
POE N Power over Ethernet network node
POE D Power over Ethernet device node

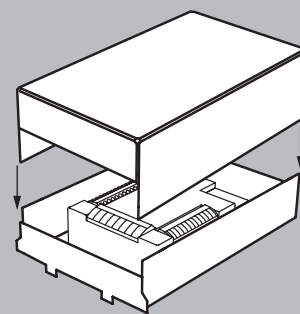
Compatible Room Controls (Furnished by others)

SENSORS

MANUFACTURER	MODEL	DESCRIPTION
B.E.G	MINI-P-PP-A-FC	Low-voltage PIR occupancy sensor (small version)
B.E.G	FLAT-S-PP-FC	Low-voltage PIR occupancy sensor (flush mount)
B.E.G	PD2N-LTMS-RR	Low-voltage combination occupancy, ambient light & temp. sensor
Leviton	PCIND	Photocell - indoor
Leviton	OSW(XX)	Multi-technology wall corner, off-white
Leviton	OSC(XX)	Ceiling mount occupancy sensor, white
Leviton	OSFHP-ILW	Low voltage on-fixture sensor
WattStopper	CI-24	PIR ceiling mount sensor 24VDC
WattStopper	DW-100-24	Dual technology low voltage wall switch occupancy sensor
WattStopper	FS-205	PIR fixture mount sensor 24V compatible
WattStopper	FD-301	Dimming photo sensor, 24VDC, 30MA, 0-10V output
WattStopper	FSP-201	Occupancy, multi-level, dimming, ambient sensing
WattStopper	FSP-202	Occupancy, multi-level, dimming, ambient sensing

WALL SWITCHES

MANUFACTURER	MODEL	DESCRIPTION
Leviton	LVS-xW	Wall button station, x = # of buttons (1, 2, 3, 4, 5)
Leviton	RLVSW-xLW	Wall button station, x = # of buttons (1, 2, or 4)
WattStopper	DW-100-24	Dual technology low voltage wall switch occupancy sensor



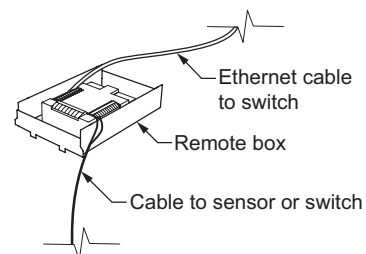
FEATURES

- ▶ Multiple mounting options
- ▶ Wire management integral

SYSTEM REQUIREMENTS

Lighting system (site software)
Gateway or alternate server (runs software)
PoE switches or Ethernet switches and mid-span power injectors
See hew.com/poe for details

REMOTE MOUNT NODE DETAILS



Includes 2' plenum rated 18ga. solid cable.

Remote box can be installed in:

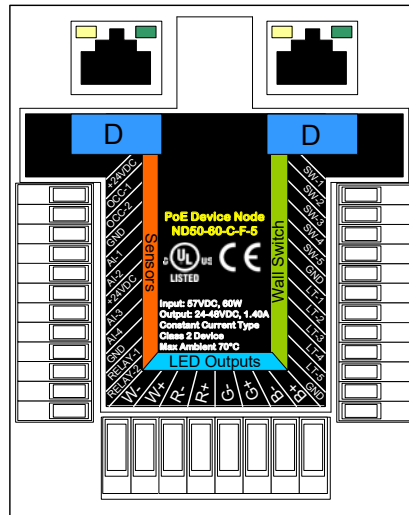
- Above ceiling grid
- Remote closet (within 100ft)
- Surface below ceiling



Accessory Node Input/Output Connections

SENSORS TERMINAL BLOCK

LABEL	FUNCTION & RATING
+24VDC	+24VDC power source for sensors, 500mA total capacity per node
OCC-1	Dry-contact motion sensor input
OCC-2	24VDC active-hi motion sensor input
GND	Ground Terminal
AI-1	Analog Input, 0-10VDC
AI-2	Analog Input, 0-10VDC
+24VDC	+24VDC power source for sensors, 500mA total capacity per node
AI-3	Analog Input, 0-10VDC
AI-4	Analog Input, 0-10VDC
GND	Ground Terminal
RELAY-1	Relay control output, 24VDC@150mA
RELAY-2	Relay control output, 24VDC@150mA

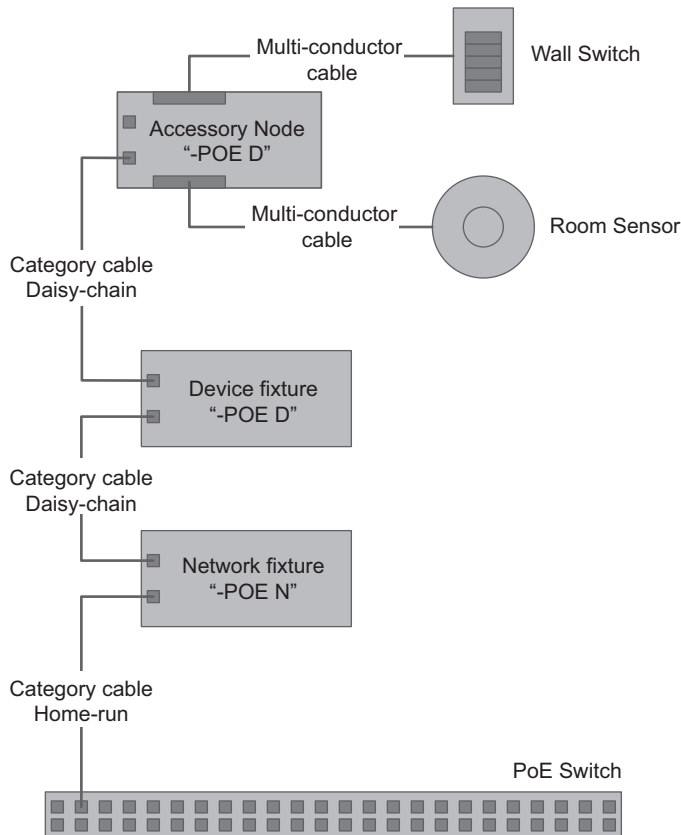


WALL SWITCH TERMINAL BLOCK

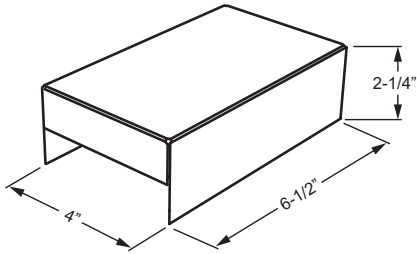
LABEL	FUNCTION & RATING
SW-1	Dry contact keypad input
SW-2	Dry contact keypad input
SW-3	Dry contact keypad input
SW-4	Dry contact keypad input
SW-5	Dry contact keypad input
GND	Ground Terminal
LT-1	Pilot light output, 24VDC @ 7.5mA
LT-2	Pilot light output, 24VDC @ 7.5mA
LT-3	Pilot light output, 24VDC @ 7.5mA
LT-4	Pilot light output, 24VDC @ 7.5mA
LT-5	Pilot light output, 24VDC @ 7.5mA
GND	Ground Terminal

LED OUTPUTS TERMINAL BLOCK

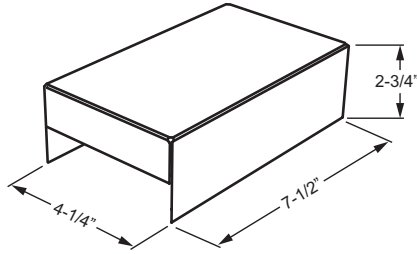
Accessory Node Connectivity Diagram Example



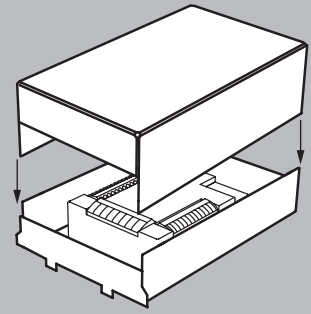
Dimension Details



STEEL



ALUMINUM



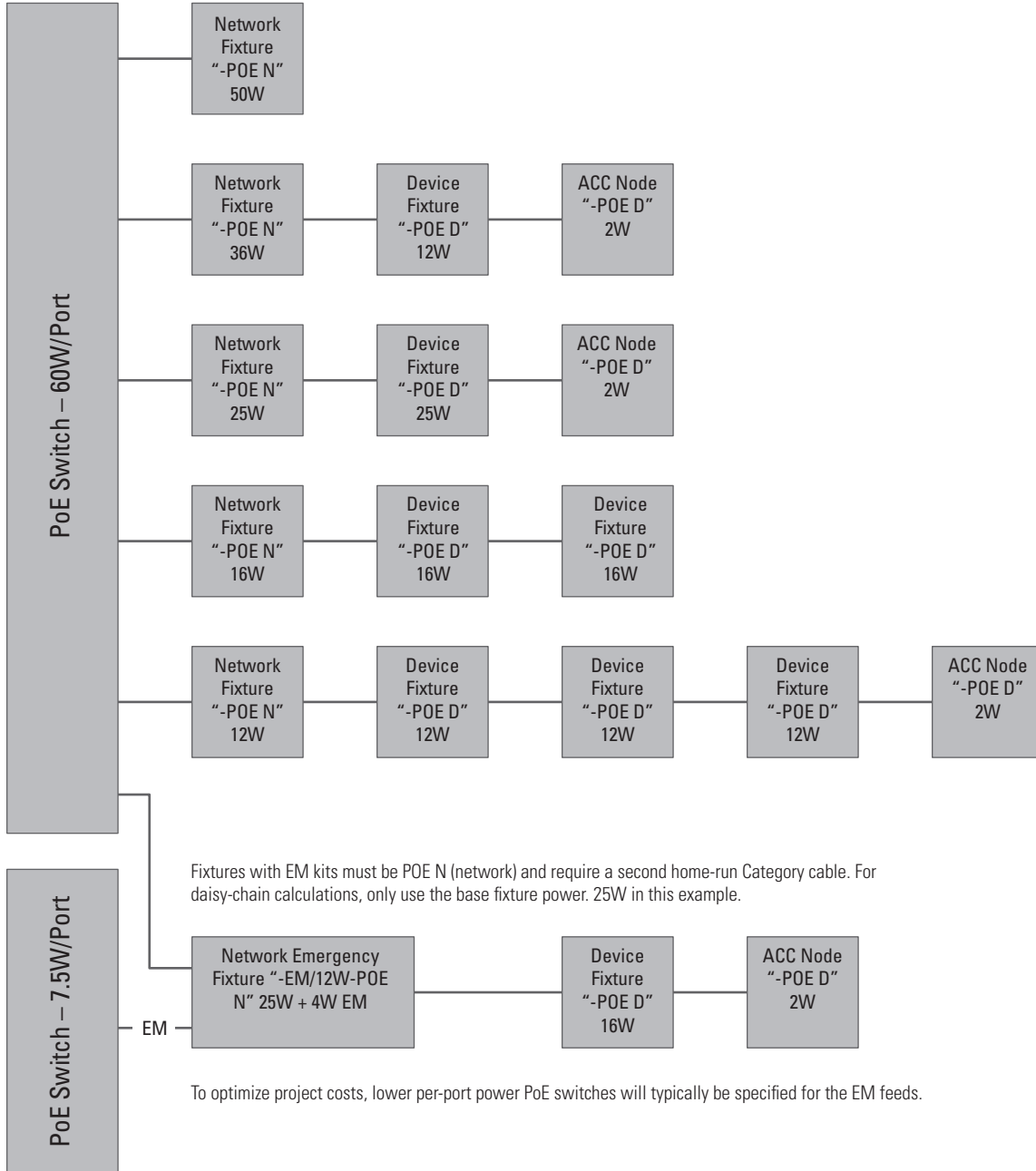
Compatible Fixtures

SERIES	STEEL	ALUMINUM
75	✓	
1SF	✓	
75L	✓	
75R	✓	
75S	✓	
ASM	✓	
AT1		✓
AT2		✓
AT3		✓
ATS1	✓	
ATS2	✓	
ATS3	✓	
AX2	✓	
AX2W	✓	
AXA	✓	
CX	✓	
HETL		✓
LC6	✓	
LC7	✓	
LLM	✓	
LLMS	✓	
LT		✓
PT		✓
PTS	✓	
SDI5	✓	

Node Wiring Chart

Requirements:

- Fixture and Accessory load maximum of 52 watts per PoE Switch Port
- Maximum 1 Network and 4 Device Fixtures/Nodes per Port
- See Page 9 "Category Cable Guide" for home run and total cabling length recommendations.



Requirements

- No home run cable may be over 100m (328ft), shown as red line
- Daisy-chain cables should not exceed 30m (100ft) in length
- Fixture power (load power up to 52W, specified on [page 1](#)) + cable loss (specified in chart below) must be less than or equal to 58W on any port
- For compliance with ANSI/NEMA C137.3-2017, power dissipation in cabling must be no greater than 5%.
Total cable loss must be less than 5% of total fixture power
- Find DC resistance value per 100m at 20°C (provided by others)
Example: DCR @ 20°C (Ohm/100M) = **9.0**
- See chart below for cable power loss

Power Loss in Watts Chart (@ 50°C)

DC Res/100m (328ft) @ 20°C	TOTAL RUN LENGTH (FEET)								
	50	100	150	200	250	300	328	350	400
5.0	0.595	1.191	1.786	2.671	3.338	4.006	4.380	4.674	5.341
5.2	0.619	1.239	1.858	2.777	3.472	4.166	4.555	4.861	5.555
5.4	0.643	1.286	1.929	2.884	3.605	4.326	4.730	5.047	5.769
5.6	0.667	1.334	2.001	2.991	3.739	4.487	4.905	5.234	5.982
5.8	0.691	1.381	2.072	3.098	3.872	4.647	5.081	5.421	6.196
6.0	0.715	1.429	2.144	3.205	4.006	4.807	5.256	5.608	6.409
6.2	0.738	1.477	2.215	3.312	4.139	4.967	5.431	5.795	6.623
6.4	0.762	1.524	2.287	3.418	4.273	5.128	5.606	5.982	6.837
6.6	0.786	1.572	2.358	3.525	4.407	5.288	5.781	6.169	7.050
6.8	0.810	1.620	2.429	3.632	4.540	5.448	5.957	6.356	7.264
7.0	0.834	1.667	2.501	3.739	4.674	5.608	6.132	6.543	7.478
7.2	0.857	1.715	2.572	3.846	4.807	5.769	6.307	6.730	7.691
7.4	0.881	1.763	2.644	3.953	4.941	5.929	6.482	6.917	7.905
7.6	0.905	1.810	2.715	4.059	5.074	6.089	6.657	7.104	8.119
7.8	0.929	1.858	2.787	4.166	5.208	6.249	6.832	7.291	8.332
8.0	0.953	1.905	2.858	4.273	5.341	6.409	7.008	7.478	8.546
8.2	0.977	1.953	2.930	4.380	5.475	6.570	7.183	7.665	8.760
8.4	1.000	2.001	3.001	4.487	5.608	6.730	7.358	7.852	8.973
8.6	1.024	2.048	3.073	4.593	5.742	6.890	7.533	8.039	9.187
8.8	1.048	2.096	3.144	4.700	5.875	7.050	7.708	8.225	9.401
9.0	1.072	2.144	3.216	4.807	6.009	7.211	7.884	8.412	9.614
9.2	1.096	2.191	3.287	4.914	6.142	7.371	8.059	8.599	9.828
9.4	1.119	2.239	3.358	5.021	6.276	7.531	8.234	8.786	10.042

CHART KEY

Cable loss below 5% of port power

Not ANSI compliant, but acceptable single port losses for maximum load (2.6W to 6W)

Beyond port limit of 52W. Not recommended on full load

Red line: no single run may be over 100m (328ft)



- National Electrical Code ANSI/NFPA 70 (NEC) 2017, Article 725 *Class 1, Class 2, and Class 3 Remote-Control, Signaling, and Power-Limited Circuits*
- Specific to PoE cabling: NEC Section 725.144, *Transmission of Power and Data*
- ANSI/NEMA Standard C137.3 *Minimum Requirements for Installation of Energy Efficient Power Over Ethernet (POE) Lighting Systems*
- ANSI/UL Standard 1598 / CSA C22.2 No. 250.0-08 *Luminaires*
- ANSI/UL Standard 8750 *Light Emitting Diode (LED) Equipment for Use in Lighting Products*
- CSA C22.2 No. 250.13-14 *Light Emitting Diode (LED) Equipment for Lighting Applications*
- ANSI/UL Standard 2108 *Low Voltage Lighting Systems*
- ANSI/UL Standard 924 *Emergency Lighting and Power Equipment*
- IEEE 802.3 Ethernet Standards
- ANSI/BICSI 007-2017, *Information Communication Technology Design and Implementation Practices for Intelligent Buildings and Premises*
- California Energy Commission Title 24 – 2016 *Building Energy Efficiency Standards For Residential And Nonresidential Buildings*
- ANSI/ASHRAE/IES Standard 90.1-2016 *Energy Standard for Buildings Except Low-Rise Residential Buildings*
- 2018 IECC *International Energy Conservation Code*
- Internet Standards - HTTP, CoAP, etc. <https://www.ietf.org/standards> ANSI/TIA-568 *Standard Commercial Building Telecommunications Cabling*

