

# MechoNet™ UPoE+ Constant Current SPICEbox™

## Datasheet

Stock#	Description
SBLC-CC2C-TP-AS	UPoE+ Constant Current SPICEbox™ (2-Channel)
SBLC-CC4C-TP-AS	UPoE+ Constant Current SPICEbox™ (4-Channel)

## Description

The MechoNet™ UPoE+ Constant Current SPICEbox™ is an IoT interface designed to provide power and control capabilities for lighting systems in a PoE network. It is compatible with IEEE 802.3bt Type 3 or Type 4 PoE Network Switches, the device supports two channels with a combined maximum power of up to 90W\* from the switch under optimal conditions. It is equipped with two NuLINK ports, and supports up to 15 EIPs (Environmental Interface Peripherals) per unit, offering a versatile and reliable solution for diverse lighting applications.

**NOTE:** The maximum 90W power refers to optimal conditions with minimal PoE cable losses. The actual power may vary based on factors such as PoE cable length and device efficiency.

This versatile lighting solution offers either RGBW or four channels of a single color to any environment. It can be easily paired with Wall Controllers, Ambient light, and PIR Motion sensors to create a fully customizable lighting system. With its exceptional performance and management capabilities, the SPICEbox™ ensures that your lighting needs are met with maximum efficiency.

The MechoNet™ UPoE+ Constant Current SPICEbox™ provides endless automation possibilities to optimize intelligent buildings and enhance the occupant experience. It utilizes CoAP (Constrained Application Protocol) messaging and MUD (Manufacturer Usage Description) for secure communication across building systems. The device is the ultimate partner for Cisco's Smart Building Solutions and is engineered for occupant comfort, productivity, and wellness while optimizing building performance and sustainability.



## Features

- Supports IEEE 802.3af, 802.3at, and 802.3bt
- Type 4 PoE Network Switches with LLDP (PoE, PoE+, UPoE, UPoE+ compliant)
- Single cable pull for power and communication
- Powering loads totaling up to 90W per SPICEbox™
- Provides 4-channel RGBW or single color lighting control
- Easy power and control of Wall Controllers, Ambient Light and PIR Motion Sensors using Cat5 cables
- The lighting system can be customized and managed for maximum system performance as needed
- Single network solution across the building
- Cisco DNA/Smart Building Solutions Partner - Employs CoAP (Constrained Application Protocol) messaging and MUD (Manufacturer Usage Description) for secure, open communication across sub-systems
- UL Listed, FCC Part 15 Class A and CE compliant

# MechoNet™ UPoE+ Constant Current SPICEbox™

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### Specifications

Equipment Kit		
MechoNet™ UPoE+ Constant Current SPICEbox™, Installation Guide		
Hardware		
Standby Power	4W	
Output Power	24VDC, Up to 90W (IEEE 802.3 af, 802.3 at, 802.3 bt)	
Output Current	Current Adjustable 250-1,000mA per channel	
Input Voltage	PoE 36-57 VDC	
Output Voltage	12-55 VDC	
PoE Port (Input)	Optional DC Power Input available (Not Standard)	
NuLINK™ Sensor Ports (Output)	Two Serial Ports for EIPs Optional Color Beacon Output Supports 15 unique sensors by Daisy Chain Sequence (No duplicate sensor type)	
Protocols	NuSPICE™, CoAP	
Configuration	2 Channels (XXBW), 4 Channels (RGBW) or 4 Channels Single Color	
Control Interface	NuLEDs™ NuPAC	
Continuous Load	Up to 90 Watts, 22AWG Conductor Cable	
Maximum Load Wiring Length	Distance	Wires
	230 ft. (70m)	14AWG
	145 ft. (44m)	16AWG
	90 ft. (27m)	18AWG
Wiring (Power)	CAT5e or CAT6 22 AWG Ethernet Cable - 328 ft. (100m) Max Network switch to SPICEbox™	
Mechanical		
Dimensions	6.5 in. (165mm) x 4.5 in. (114mm) x 1.5 in. (38mm)	
Weight	12 oz.	
Mounting	Screw mounted flange, Surface or Stand-alone  <b>Caution:</b> Please be aware that when mounting SPICEbox™ to metal surfaces or pockets, the gateway must be isolated from possible earth or building electrical grounding and other gateways.	
Dimming	NuLEDs™ NuSPICE™	
Environmental		
Operating Temperature	32° to 104°F (0° to 40°C) ambient	
Humidity	10-80% Non-Condensing	
Agency Listings and Compliance		
UL Listed UL60950-1, FCC Class A Compliant, CE Compliant, RoHS		

### Mounting

Should be mounted to wood or drywall backing via mounting tabs in a vertical position.

#### CAUTION

When mounting SPICEbox™ to metal surfaces or pockets, the gateway must be isolated from possible earth or building electrical grounding and other gateways.



#### Warning

- Caution** - Observe precautions for handling electrostatic sensitive devices.
- Case to the SPICEbox™ should not be earth grounded.
- Do not use outdoors.
- Warning** - Risk of Electric Shock. Do not handle energized module with wet hands or when standing on wet or damp surfaces.
- Use only with Class 2 Power Unit - 60VDC maximum.
- Conforms to UL60950-1, CE, FCC standards
- Warranty** - Voided if device has been modified from its original configuration.

# MechoNet™ UPoE+ Constant Current SPICEbox™

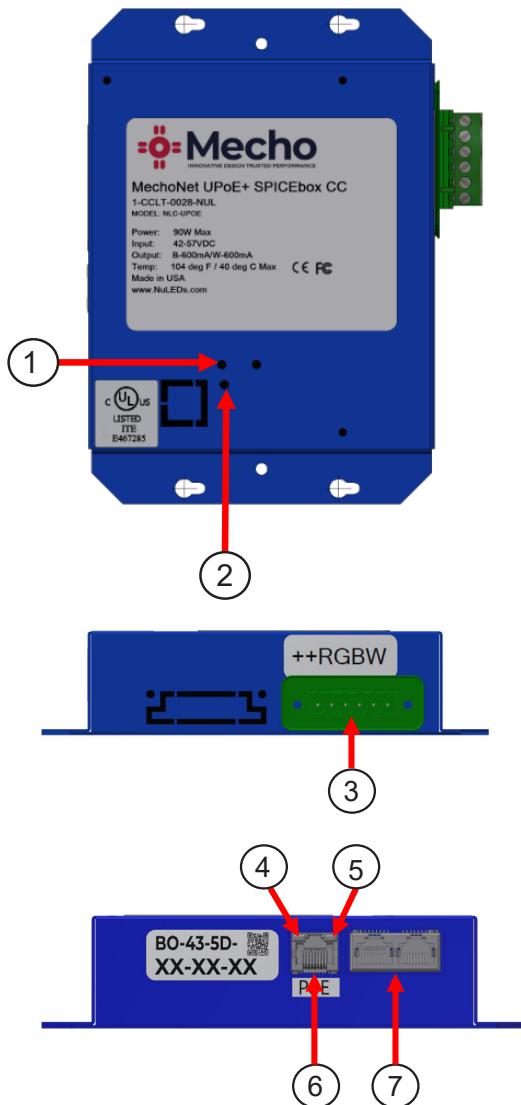
## Datasheet

### Dimensions



### Connections and Indicators

Supports both ANSI/TIA/EIA 568 A & B Standards

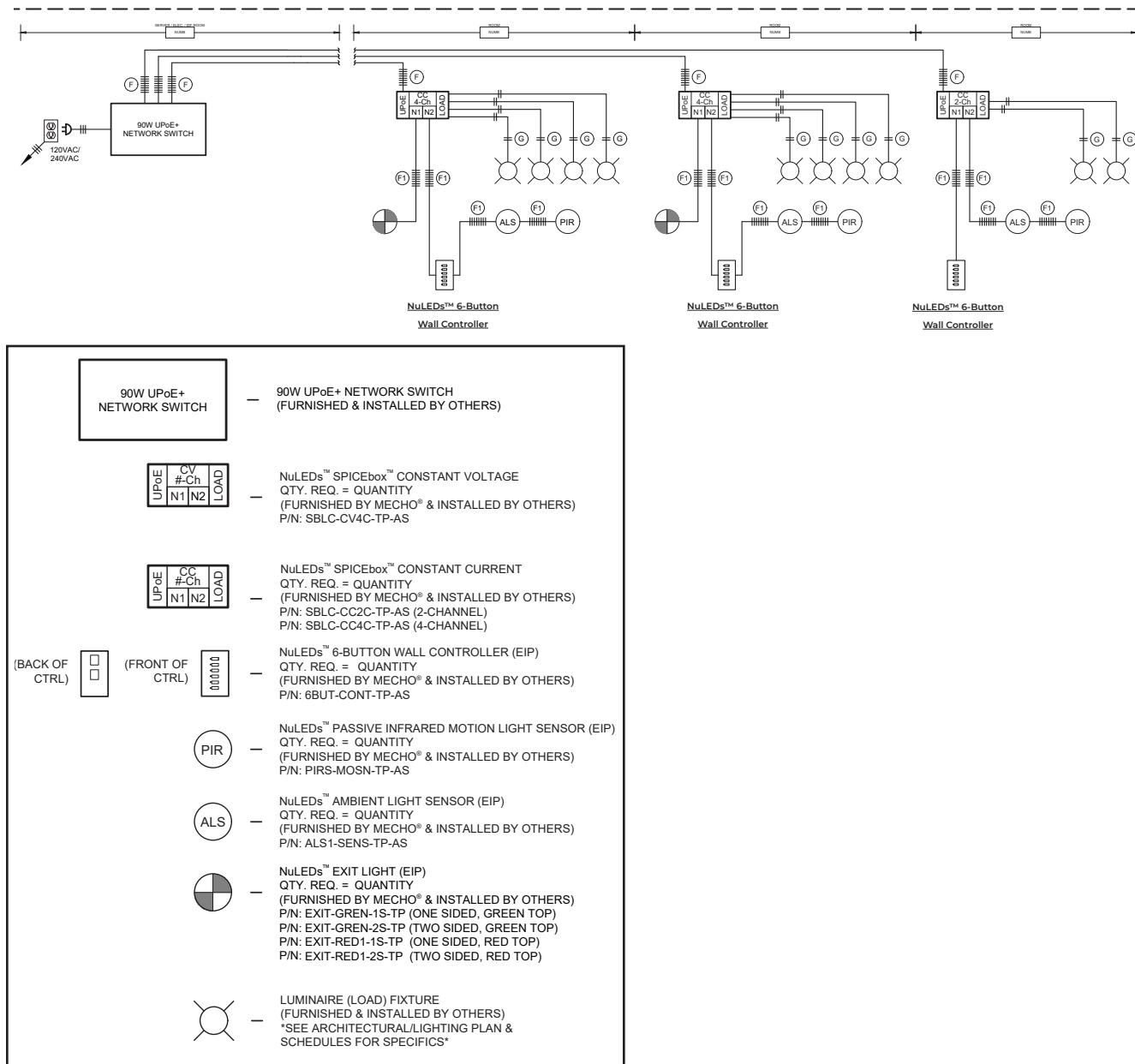


No.	Description	Function
1	Reset Button	Factory Reset
2	Power LED	Power Indication
3	Load Terminal Block	Constant Current Output Power to Lights
4	Ethernet Port Green LED	Function ON - Ethernet Active
5	Ethernet Port Amber LED	Network Traffic
6	Ethernet Port	Power and Data Input from PoE system
7	NuLINK Ports	Up to 15 EIP connections

# MechoNet™ UPoE+ Constant Current SPICEbox™

## Datasheet

### NuLINK™ Network Wiring Diagram

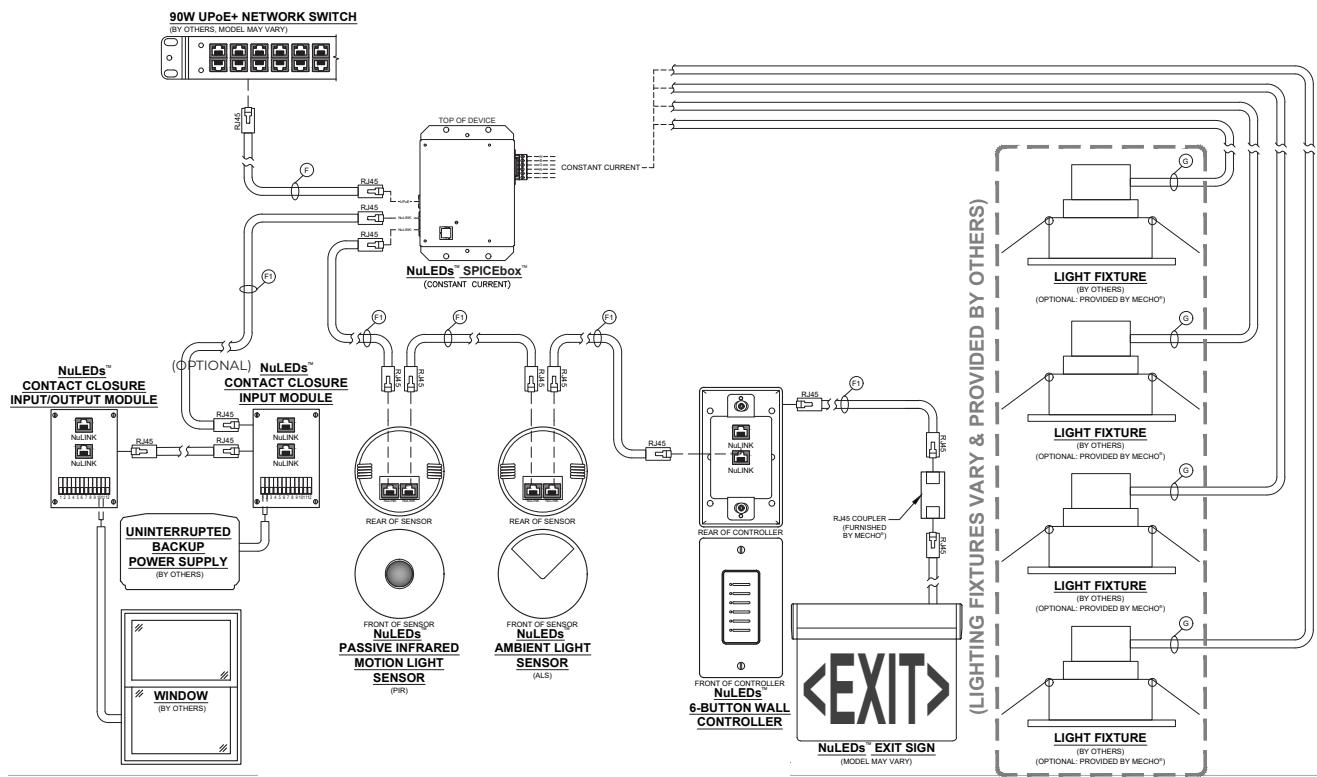


**NOTE:** Refer to page 10 for the Low Voltage Cable Legend and Crimping Instructions.

**MechoNet™ UPoE+ Constant Current SPICEbox™**

## Datasheet

## Point-to-Point Diagram



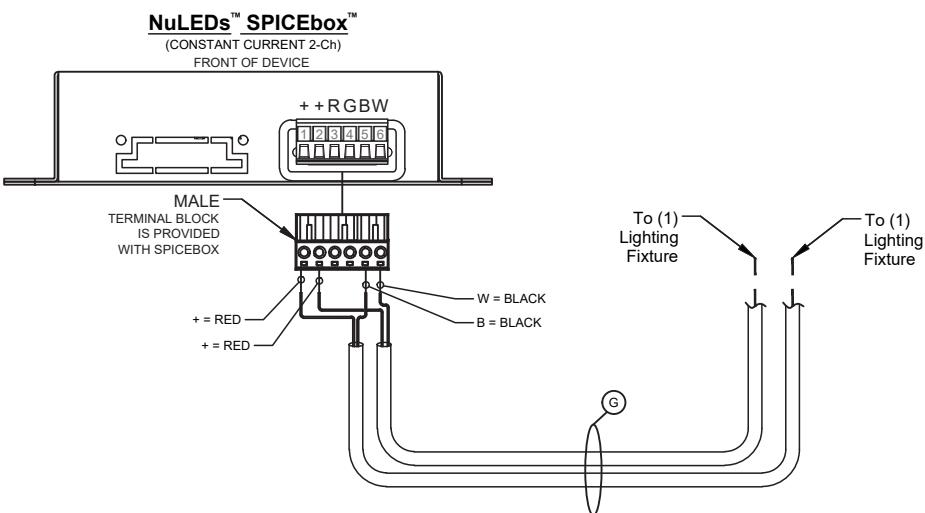
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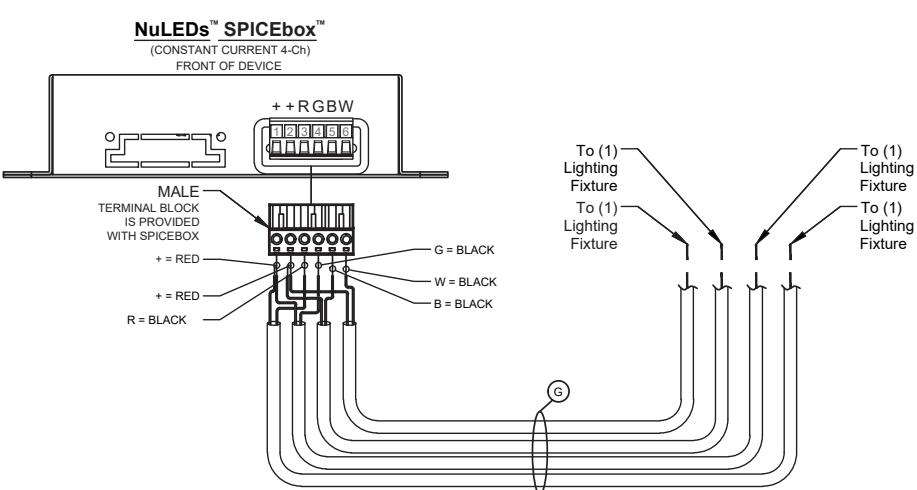
### Point-to-Point Diagram - Port Connections 2 Channel

SPICEBOX LOAD PORT WIRING PIN OUT		
PIN#	FUNCTION	PIN#
1	POWER (+)	1
2	POWER (+)	2
3	R CHANNEL	3
4	G CHANNEL	4
5	B CHANNEL	5
6	W CHANNEL	6



### Point-to-Point Diagram - Port Connections 4 Channel

SPICEBOX LOAD PORT WIRING PIN OUT		
PIN#	FUNCTION	PIN#
1	POWER (+)	1
2	POWER (+)	2
3	R CHANNEL	3
4	G CHANNEL	4
5	B CHANNEL	5
6	W CHANNEL	6



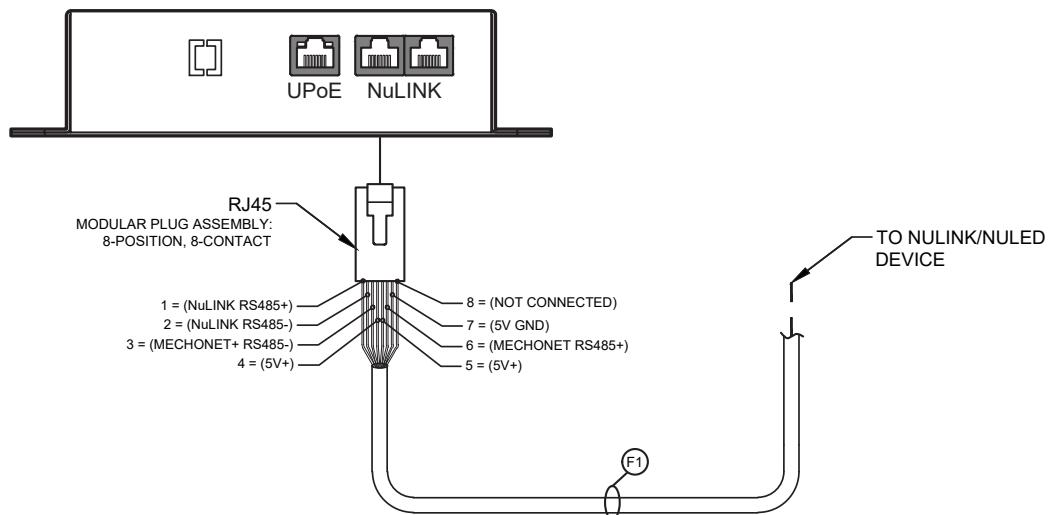
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### Point-to-Point Diagram - Port Connections

NuLINK MECHONET+ (RS485) PINOUT		
CABLE TYPE: CAT5/CAT5e/CAT6		
CATX CRIMP	PIN#:	WIRE COLOR:
	1	ORANGE/WHITE STRIPE
	2	ORANGE SOLID
	3	GREEN/WHITE STRIPE
	4	BLUE SOLID
	5	BLUE/WHITE STRIPE
	6	GREEN SOLID
	7	BROWN/WHITE STRIPE
	8	BROWN SOLID
		N/C

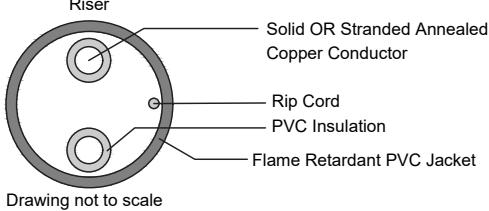
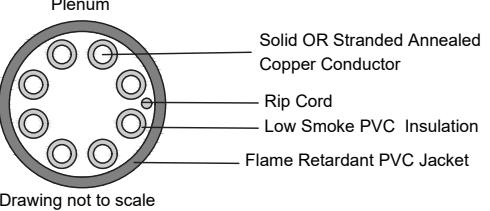


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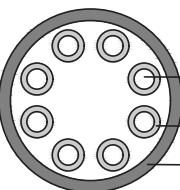
### Cable Reference Drawing

CABLE G REFERENCE DRAWING							
							
Drawing not to scale				Drawing not to scale			
SPECIFICATIONS:							
CONDUCTOR COUNT: 2 THRU 12 CONDUCTORS				PERFORMANCE COMPLIANCE: NEC ARTICLE 725 NEC ARTICLE 800 NEC ARTICLE 760 UL®13 CL3R/CL3P UL 444 CMR/CMP* UL 1424 FPLR/FPLP UL 1666 NFPA 262 CALIFORNIA STATE FIRE MARSHALL RoHS-COMPLIANT/RoHS 2-COMPLIANT			
CONDUCTOR: FULLY ANNEALED, SOLID OR STRANDED BARE COPPER				NRTL PROGRAMS: UL LISTED CL3R, CMR, FPLR UL LISTEN CL3P, CMP, FPLP			
AWG (mm): 18 (1.16)							
INSULATION: LOW SMOKE PVC							
INSULATION COLORS: CONDUCTOR 1: BLACK CONDUCTOR 2: RED CONDUCTOR 3: WHITE CONDUCTOR 4: GREEN CONDUCTOR 5: BROWN CONDUCTOR 6: BLUE CONDUCTOR 7: ORANGE CONDUCTOR 8: YELLOW CONDUCTOR 9: VIOLET CONDUCTOR 10: GRAY CONDUCTOR 11: PINK CONDUCTOR 12: TAN							
JACKET: RISER: GRAY, FLAME RETARDANT (FR) PVC PLENUM: WHITE, LOW SMOKE PVC							
PACKAGE: BLACK, RIBBED, PLASTIC RECYCLABLE SPOOL, REEL-IN-A-BOX OR WOOD REEL							
Part Numbers and Physical Characteristics:							
Listing	Part Number <sup>1</sup>	Conductor Count	AWG (mm)	Conductor Type	Jacket Color <sup>2</sup>	Nominal Diameter in (mm)	Approx. Weight lbs/kft (kg/km)
CL3R/CMR/FPLR	2F-C1x-31	2	18 (1.16)	7 x 26 AWG	GRAY	0.16 (4.1)	17 (25)
CL3R/CMR/FPLR	2F-C2x-31	3	18 (1.16)	7 x 26 AWG	GRAY	0.17 (4.3)	22 (9)
CL3R/CMR/FPLR	2F-C3x-31	4	18 (1.16)	7 x 26 AWG	GRAY	0.19 (4.8)	30 (45)
CL3R/CMR/FPLR	2F-C4x-31	6	18 (1.16)	7 x 26 AWG	GRAY	0.23 (5.8)	43 (64)
CL3R/CMR/FPLR	2F-C5x-31	8	18 (1.16)	7 x 26 AWG	GRAY	0.25 (6.4)	56 (83)
CL3R/CMR/FPLR	2F-C7x-31	12	18 (1.16)	7 x 26 AWG	GRAY	0.30 (7.6)	83 (124)
CL3P/CMP/FPLP	2F-C1x-43	2	18 (1.16)	7 x 26 AWG	WHITE	0.16 (4.1)	17 (25)
CL3P/CMP/FPLP	2F-C2x-43	3	18 (1.16)	7 x 26 AWG	WHITE	0.17 (4.3)	22 (9)
CL3P/CMP/FPLP	2F-C3x-43	4	18 (1.16)	7 x 26 AWG	WHITE	0.19 (4.8)	30 (45)
CL3P/CMP/FPLP	2F-C4x-43	6	18 (1.16)	7 x 26 AWG	WHITE	0.23 (5.8)	44 (65)
CL3P/CMP/FPLP	2F-C5x-43	8	18 (1.16)	7 x 26 AWG	WHITE	0.25 (6.4)	57 (85)
CL3P/CMP/FPLP	2F-C7x-43	12	18 (1.16)	7 x 26 AWG	WHITE	0.30 (7.6)	85 (126)
Packaging Options:							
		Plastic Spool		Reel-in-a-Box		Wood Reel	Shrink Wrap
		1,000'	500'	1,000'	500'	1,000'	250'
1'Replace "x" with:		2	3	4	5	6	7
							8

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### Cable Reference Drawing

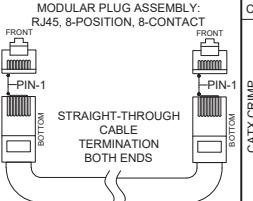
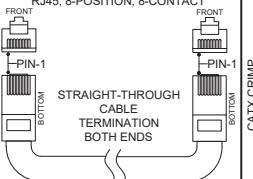
<b>CABLE F REFERENCE DRAWING</b>					
 <p>Solid Annealed Copper Conductor Thermoplastic Insulation Flame Retardant PVC Jacket</p> <p>Drawing not to scale</p>					
<b>SUPERIOR ESSEX (www.superioressex.com)</b>					
<b>PART No. PW52-H46-X5 (NON-PLENUM) &amp; PW52-H46-X8 (PLENUM)</b>					
<b>SPECIFICATIONS (SOLID): CATEGORY 5E+</b>					
PAIR COUNT:	4				
CONDUCTOR:	SOLID ANNEALED COPPER				
AWG (mm):	22 (0.51)				
INSULATION:	CMR: POLYOLEFIN CMP: FEP				
INSULATION COLORS:	PAIR 1: COLORTIP LIGHT BLUE, BLUE PAIR 2: COLORTIP LIGHT ORANGE, ORANGE PAIR 3: COLORTIP LIGHT GREEN, GREEN PAIR 4: COLORTIP LIGHT BROWN, BROWN				
JACKET:	CMR: FLAME RETARDANT (FR) PVC CMP: FR, LOW SMOKE PVC				
CHARACTERISTIC IMPEDANCE Ohms:	100 ± 15				
NOMINAL VELOCITY OF PROPAGATION %:	CMR: 71 CMP: 74				
PERFORMANCE COMPLIANCE:	UL 444 CSA C22.2 No. 214-08 UL 1666 NFPA 262 ANSI/TIA-568-C.2 ANSI/ICEA S-90-661-2012 Article 800, NEC (NFPA 70) HDBaseT Class A and B				
NRTL PROGRAMS:	UL Verified CAT 5e UL, c(UL) Listed CMR UL, c(UL) Listed CMP HDBaseT Certified				
SUSTAINABILITY:	UL Certified EPD HPD USGBC® Member RoHS-compliant/RoHS 2-compliant REACH-compliant				
Temperature cable rating: 75°C for CMR and 90°C for CMP					
<b>PART NUMBERS AND PHYSICAL CHARACTERISTICS</b>					
Listing	Part Number <sup>1</sup>	Nominal Diameter in (mm)	Approx. Weight lbs/kft (kg/km)	Package	Packages per Pallet
CMR	PW52-H46-x5	0.23 (4.6)	28 (25)	1,000 ft BrakeBox®	12
CMR	PW52-H72-x5	0.23 (4.6)	28 (25)	1,000 ft Plywood Reel	16
CMP	PW52-H46-x8	0.23 (4.8)	37 (28)	1,000 ft BrakeBox	12
CMP	PW52-H72-x8	0.23 (4.8)	37 (28)	1,000 ft Plywood Reel	16
<b>JACKET COLORS</b>					
1Replace "x" with: Blue = 2 Gray = 3 White = 4 Green = 5					
Yellow = 6	Purple = 7	Red = 9	Black = E		

# MechoNet UPoE+ Constant Current SPICEbox™

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### Low Voltage Cable Legend and Crimping Instructions

LOW VOLTAGE CABLE LEGEND - EIA568B	
NOTES:	
	<p>1. PARALLEL WIRING TO NEXT DEVICE PER BRANCH CIRCUIT CAPACITY. ALL CONNECTION MUST MEET NATIONAL AND LOCAL CODES AND REGULATIONS.</p> <p>2. ADDRESS SCHEDULES REQUIRED.</p> <p>3. MAXIMUM VOLTAGE FOR ALL UNMARKED CABLE IS 43.5 VDC.</p> <p>4. LOW VOLTAGE CABLES SHOULD NOT BE ROUTED NEAR POWER LINES OR ELECTRICAL DEVICES SUCH AS LIGHTING BALLASTS, DIMMERS AND LED DRIVERS THAT MAY EXPOSE THE SYSTEM TO EXCESSIVE ELECTRICAL NOISE.</p>
(F)	<p><b>CAT5E+ - CABLE FOR UPoE NETWORK WIRING CONNECTIONS:</b></p> <p><b>SPECIFICATION:</b> 22AWG 4UTP (8-CONDUCTOR SOLID UNSHIELDED TWISTED PAIR)</p> <p><b>TERMINATION:</b> RJ-45 MODULAR PLUG CRIMPED (EIA568B) ON BOTH ENDS</p> <p><b>RECOMMENDED:</b> SUPERIOR ESSEX (WWW.SUPERIORESSEX.COM) PART NO. PW52-H46-X5 (NON-PLenum) &amp; PW52-H46-X8 (PLenum) OR COMPATIBLE CABLE</p> <p><b>DISTANCE LIMITATION: 328'. MAX. NODES: 1</b> SEE "CABLE F REFERENCE DRAWING" FOR DETAILED SPECIFICATION. (FURNISHED &amp; INSTALLED BY OTHERS)</p>
(F1)	<p><b>CAT5E+ - CABLE FOR NuLED NETWORK WIRING CONNECTIONS:</b></p> <p><b>SPECIFICATION:</b> 22AWG 4UTP (8-CONDUCTOR SOLID UNSHIELDED TWISTED PAIR)</p> <p><b>TERMINATION:</b> RJ-45 MODULAR PLUG CRIMPED (EIA568B) ON BOTH ENDS</p> <p><b>RECOMMENDED:</b> SUPERIOR ESSEX (WWW.SUPERIORESSEX.COM) PART NO. PW52-H46-X5 (NON-PLenum) &amp; PW52-H46-X8 (PLenum) OR COMPATIBLE CABLE</p> <p><b>DISTANCE LIMITATION: 50'. MAX. EIPS: 15</b> SEE CABLE "F" REFERENCE DRAWING FOR DETAILED SPECIFICATION. (FURNISHED &amp; INSTALLED BY OTHERS)</p>
(G)	<p><b>CABLE FOR SPICEBOX TO LIGHT (LOAD) FIXTURE WIRING CONNECTIONS:</b></p> <p><b>SPECIFICATION:</b> 2 TO 12-CONDUCTOR, (18AWG UNSHIELDED)</p> <p><b>RECOMMENDED:</b> SUPERIOR ESSEX (WWW.SUPERIORESSEX.COM 1-800-551-8948) LISTING NO. CL3R/CMR/FPLR (NON-PLenum), &amp; CL3P/CMP/FPLP (PLenum)</p> <p><b>DISTANCE LIMITATION: VARIES PER LOAD. MAX. LOADS: VARIES BY WATTS</b> SEE CABLE "G" REFERENCE DRAWING FOR DETAILED SPECIFICATION. (FURNISHED &amp; INSTALLED BY OTHERS)</p>

EIA 568B CRIMPING - 8 CONDUCTOR CABLE																													
UPoE CONNECTIONS ON UPoE NETWORK																													
MODULAR PLUG ASSEMBLY: RJ45, 8-POSITION, 8-CONTACT		CABLE TYPE: CAT5/CAT5e/CAT6																											
		<table border="1"> <thead> <tr> <th>PIN#:</th> <th>WIRE COLOR:</th> <th>FUNCTION:</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>ORANGE/WHITE STRIPE</td> <td>DATA A+/POWER+</td> </tr> <tr> <td>2</td> <td>ORANGE SOLID</td> <td>DATA A-/POWER-</td> </tr> <tr> <td>3</td> <td>GREEN/WHITE STRIPE</td> <td>DATA B+/POWER+</td> </tr> <tr> <td>4</td> <td>BLUE SOLID</td> <td>DATA C+/POWER+</td> </tr> <tr> <td>5</td> <td>BLUE/WHITE STRIPE</td> <td>DATA C-/POWER-</td> </tr> <tr> <td>6</td> <td>GREEN SOLID</td> <td>DATA B-/POWER-</td> </tr> <tr> <td>7</td> <td>BROWN/WHITE STRIPE</td> <td>DATA D+/POWER+</td> </tr> <tr> <td>8</td> <td>BROWN SOLID</td> <td>DATA D-/POWER-</td> </tr> </tbody> </table>	PIN#:	WIRE COLOR:	FUNCTION:	1	ORANGE/WHITE STRIPE	DATA A+/POWER+	2	ORANGE SOLID	DATA A-/POWER-	3	GREEN/WHITE STRIPE	DATA B+/POWER+	4	BLUE SOLID	DATA C+/POWER+	5	BLUE/WHITE STRIPE	DATA C-/POWER-	6	GREEN SOLID	DATA B-/POWER-	7	BROWN/WHITE STRIPE	DATA D+/POWER+	8	BROWN SOLID	DATA D-/POWER-
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2	ORANGE SOLID	NuLINK RS485-																											
3	GREEN/WHITE STRIPE	MECHONET+ RS485-																											
4	BLUE SOLID	5V+																											
5	BLUE/WHITE STRIPE	5V+																											
6	GREEN SOLID	MECHONET RS485+																											
7	BROWN/WHITE STRIPE	5V GND																											
8	BROWN SOLID	N/C																											
CATX CRIMP																													

#### Warranty

Mecho's warranty ensures its products against defects in materials and workmanship for up to 25 years. The warranty timeline shall vary for different products. For complete warranty information, please visit <https://www.mechoshade.com/warranty> or contact your Mecho® representative.

Mecho® reserves the right to make improvements or changes to its products without prior notice. Every attempt is made to ensure the information herein is accurate and up to date. Verify with the Mecho® staff to confirm the product's availability, latest specifications, and suitability for your application.

#### Technical support

Mecho®

T: +1 (800) 327-9798 (Follow prompts for Mecho® & Tech Support)

E: [techsupport@mechoshade.com](mailto:techsupport@mechoshade.com)

W: [www.mechoshade.com](http://www.mechoshade.com)