MechoNet™ UPoE+ Constant Voltage SPICEbox™
Datasheet

Stock#	Description
SBLC-CV4C-TP-AS	UPoE+ Constant Voltage SPICEbox (4-Channel)

Description

The MechoNet UPoE+ Constant Voltage SPICEbox™ is an IoT interface designed to provide efficient power and control for lighting systems in a PoE network. It is compatible with IEEE 802.3bt Type 3 or Type 4 PoE Network Switches and can draw up to 90W* of power under optimal conditions. It is equipped with two NuLINK ports, and supports up to 15 EIPs 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 can provide 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 SPICEbox™ offers endless automation possibilities to optimize today's intelligent buildings and enhance the occupant experience. By utilizing CoAP (Constrained Application Protocol) messaging and MUD (Manufacturer Usage Description), the UPoE+ Constant Voltage SPICEbox™ provides unparalleled security in communication across building systems. It is the ultimate partner for Cisco's Smart Building Solutions and is engineered for occupant comfort, productivity, and wellness while simultaneously 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

- Provides up to 90W of continuous power

- 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 Voltage SPICEbox™
Datasheet

Specifications

Equipment Kit		
MechoNet™ UPoE+ Constant Voltage SPICEbox™, Installation Guide		
Hardware		
Standby Power	4W	
Input Power	24VDC, Up to 90W (IEEE 802.3 af, 802.3 at, 802.3 bt)	
Input Voltage	PoE 36-57VDC	
Output Voltage	24VDC	
PoE Port (Input)	Optional DC Power Input available (Not Standard)	
NuLINK™ Sensor Ports (Output)	Two Serial Ports for EIPs Supports 15 unique sensors by Daisy Chain Sequence (No duplicate sensor type)	
Protocols	NuSPICE™, CoAP	
Configuration	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 **Caution:** 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.

⚠️ **Caution:** 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.
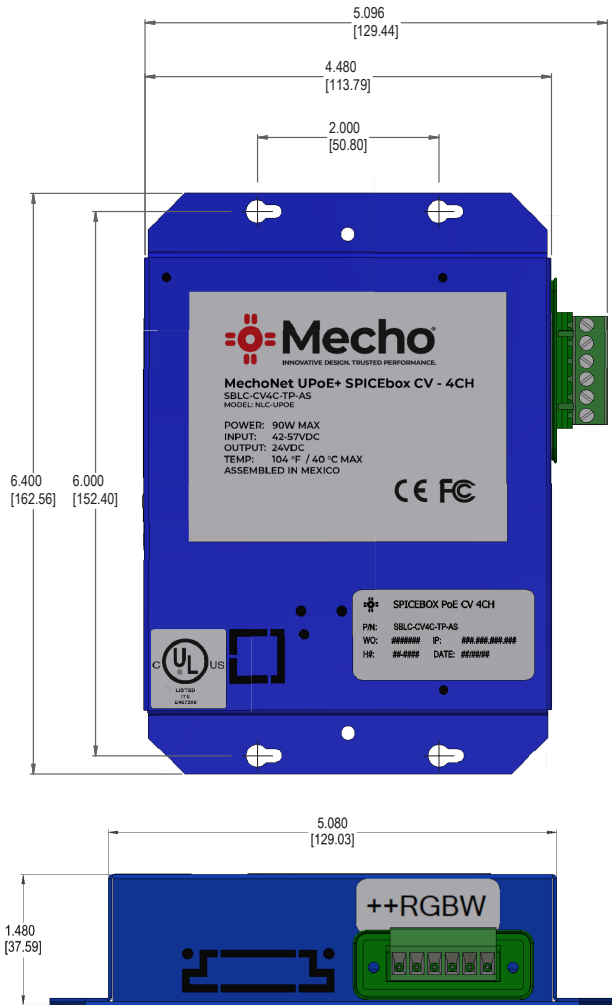

⚠️ Warning

- **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.

Mecho® INNOVATIVE DESIGN. TRUSTED PERFORMANCE.
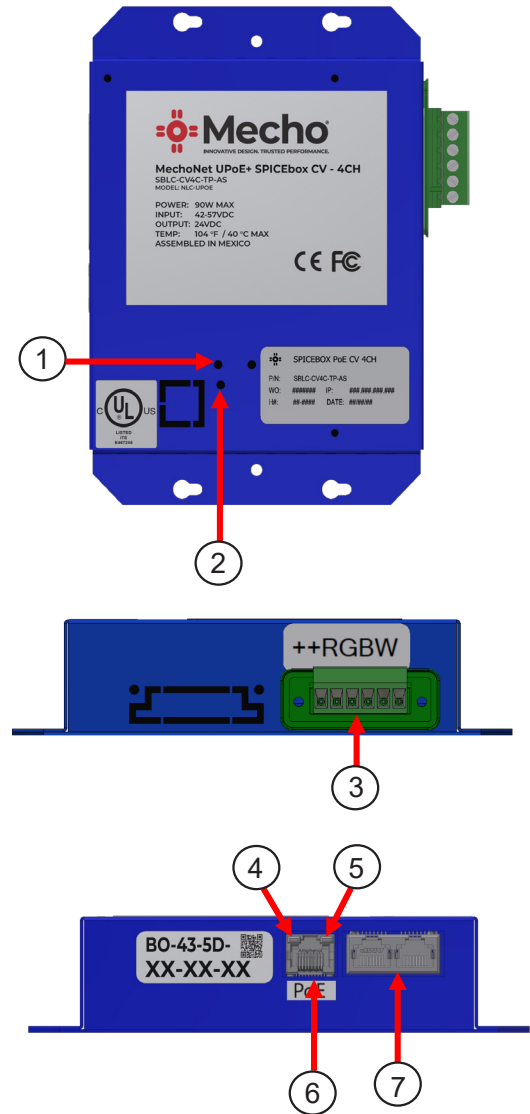NuLEDs Lighting Over IP

(800) 327-9798
mechoshade.com

MechoNet™ UPoE+ Constant Voltage SPICEbox™

Datasheet

Dimensions

Connections and Indicators
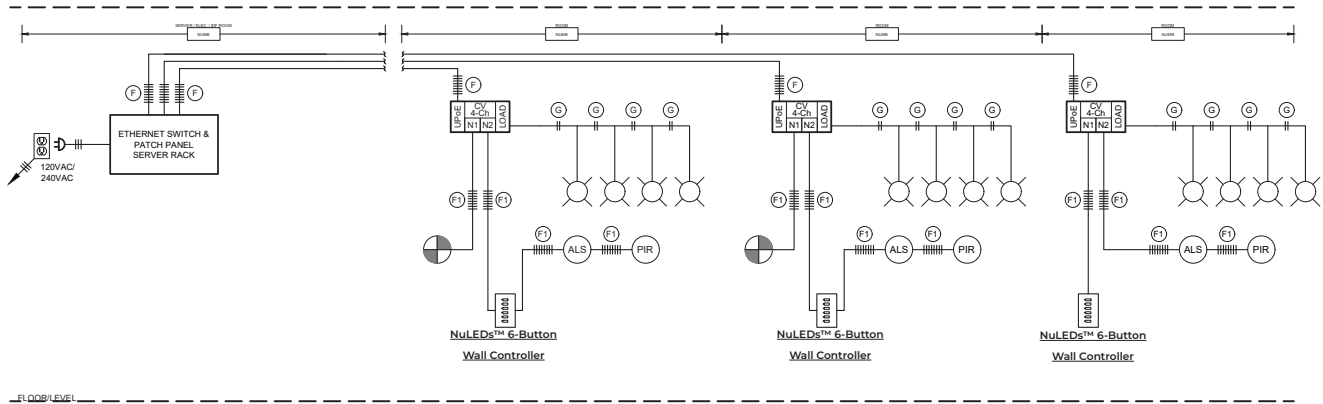Supports both ANSI/TIA/EIA 568 A & B Standards

No.	Description	Function
1	Reset Button	Factory Reset
2	Power LED	Power Indication
3	Load Terminal Block	Constant Voltage 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

(800) 327-9798
mechoshade.com

MechoNet™ UPoE+ Constant Voltage SPICEbox™
Datasheet

NuLINK™ Network Wiring Diagram - Constant Voltage


EQUIPMENT KEY FOR NuLEDs/NuLINK SYSTEM

Symbol	Description
ETHERNET SWITCH & PATCH PANEL SERVER RACK	ETHERNET NETWORK SWITCH (FURNISHED & INSTALLED BY OTHERS)
UPoE CV #-Ch N1 N2 LOAD	NuLEDs™ SPICEbox™ CONSTANT VOLTAGE QTY. REQ. = QUANTITY (FURNISHED BY MECHO® & INSTALLED BY OTHERS) P/N: SBLC-CV4C-TP-AS
UPoE CC #-Ch N1 N2 LOAD	NuLEDs™ SPICEbox™ CONSTANT CURRENT QTY. REQ. = QUANTITY (FURNISHED BY MECHO® & INSTALLED BY OTHERS) P/N: SBLC-CC2C-TP-AS (2-CHANNEL) P/N: SBLC-CC4C-TP-AS (4-CHANNEL)
(BACK OF CTRL) (FRONT OF CTRL)	NuLEDs™ 6-BUTTON WALL CONTROLLER (EIP) QTY. REQ. = QUANTITY (FURNISHED BY MECHO® & INSTALLED BY OTHERS) P/N: 6BUT-CONT-TP-AS
PIR	NuLEDs™ PASSIVE INFRARED MOTION LIGHT SENSOR (EIP) QTY. REQ. = QUANTITY (FURNISHED BY MECHO® & INSTALLED BY OTHERS) P/N: PIRS-MOSN-TP-AS
ALS	NuLEDs™ AMBIENT LIGHT SENSOR (EIP) QTY. REQ. = QUANTITY (FURNISHED BY MECHO® & INSTALLED BY OTHERS) P/N: ALS1-SENS-TP-AS
(exit light)	NuLEDs™ EXIT LIGHT (EIP) QTY. REQ. = QUANTITY (FURNISHED BY MECHO® & INSTALLED BY OTHERS) P/N: EXIT-GREN-1S-TP (ONE SIDED, GREEN TOP) P/N: EXIT-GREN-2S-TP (TWO SIDED, GREEN TOP) P/N: EXIT-RED1-1S-TP (ONE SIDED, RED TOP) P/N: EXIT-RED1-2S-TP (TWO SIDED, RED TOP)
(luminaire)	LUMINAIRE (LOAD) FIXTURE (FURNISHED & INSTALLED BY OTHERS) *SEE ARCHITECTURAL/LIGHTING PLAN & SCHEDULES FOR SPECIFICS*

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

(800) 327-9798
mechoshade.com
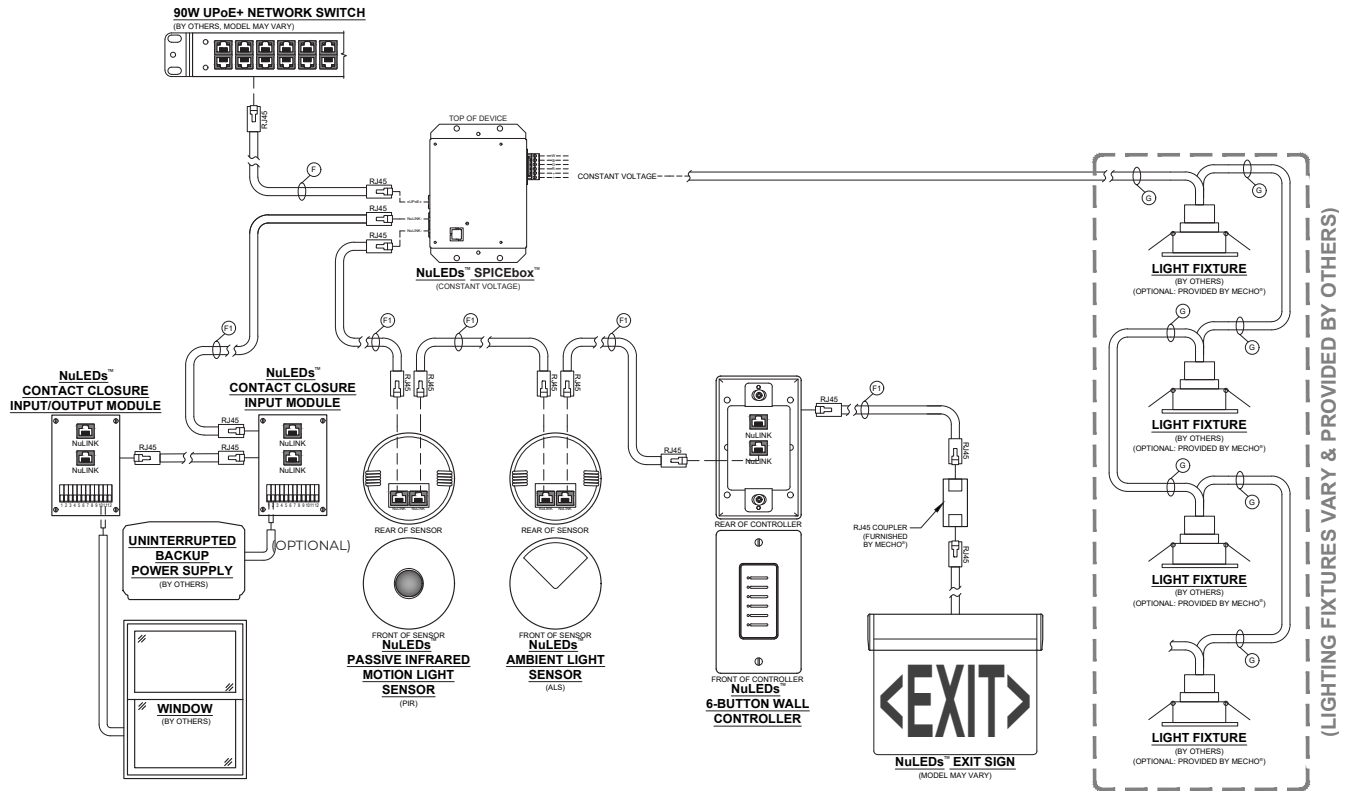
MechoNet™ UPoE+ Constant Voltage SPICEbox™

Point-to-Point Diagram

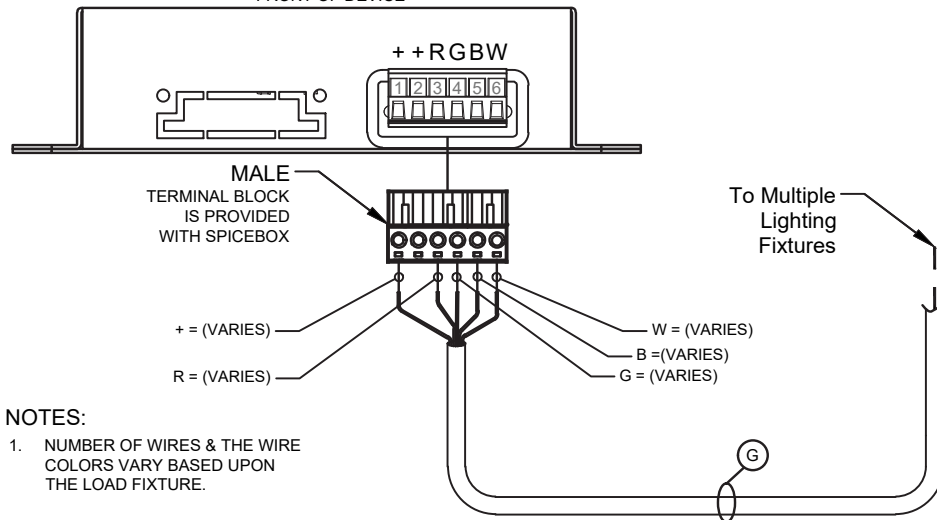**NOTE:** Refer to page 10 for the Low Voltage Cable Legend and Crimping Instructions.

Constant Voltage Point-to-Point Diagram - 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

NuLEDs™ SPICEbox™
(CONSTANT VOLTAGE - 4Ch)
FRONT OF DEVICE
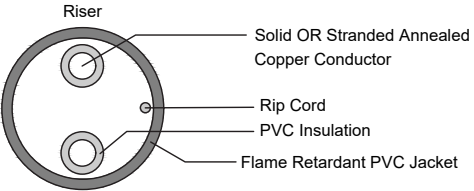
+ + R G B W

MALE
TERMINAL BLOCK
IS PROVIDED
WITH SPICEBOX

To Multiple
Lighting
Fixtures

+ = (VARIES)

R = (VARIES)

W = (VARIES)

B =(VARIES)

G = (VARIES)

NOTES:
1. NUMBER OF WIRES & THE WIRE
   COLORS VARY BASED UPON
   THE LOAD FIXTURE.

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

Mecho® INNOVATIVE DESIGN. TRUSTED PERFORMANCE.

NuLEDs
Lighting Over IP

(800) 327-9798
mechoshade.com

Cable Reference Drawing
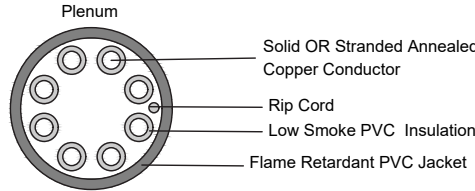
CABLE G REFERENCE DRAWING

Riser

Solid OR Stranded Annealed Copper Conductor

Rip Cord

PVC Insulation

Flame Retardant PVC Jacket

Drawing not to scale

Plenum

Solid OR Stranded Annealed Copper Conductor

Rip Cord

Low Smoke PVC Insulation

Flame Retardant PVC Jacket

Drawing not to scale

SPECIFICATIONS:

CONDUCTOR COUNT:	2 THRU 12 CONDUCTORS
CONDUCTOR:	FULLY ANNEALED, SOLID OR STRANDED BARE COPPER
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

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
NRTL PROGRAMS:	UL LISTED CL3R, CMR, FPLR UL LISTEN CL3P, CMP, FPLP

Part Numbers and Physical Characteristics:

Listing	Part Number[1]	Conductor Count	AWG (mm)	Conductor Type	Jacket Color[2]	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:
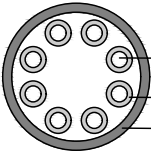
	Plastic Spool		Reel-in-a-Box		Wood Reel	Shrink Wrap	
	1,000'	500'	1,000'	500'	1,000'	250'	500'
[1]Replace "x" with:	2	3	4	5	6	7	8

Mecho® INNOVATIVE DESIGN. TRUSTED PERFORMANCE.   NuLEDs Lighting Over IP

(800) 327-9798
mechoshade.com

MechoNet™ UPoE+ Constant Voltage SPICEbox™
Datasheet

Cable Reference Drawing

CABLE F REFERENCE DRAWING

- Solid Annealed Copper Conductor
- Thermoplastic Insulation
- Flame Retardant PVC Jacket

Drawing not to scale

SUPERIOR ESSEX (www.superioressex.com) PART No. PW52-H46-X5 (NON-PLENUM) & PW52-H46-X8 (PLENUM)

SPECIFICATIONS (SOLID): CATEGORY 5E+

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

Part Numbers and Physical Characteristics

Listing	Part Number[1]	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

Jacket Colors

[1]Replace "x" with:	Blue = 2	Gray = 3	White = 4	Green = 5
Yellow = 6	Purple = 7	Red = 9	Black = E	

Low Voltage Cable Legend and Crimping Instructions

LOW VOLTAGE CABLE LEGEND - EIA568B

NOTES:
1. PARALLEL WIRING TO NEXT DEVICE PER BRANCH CIRCUIT CAPACITY. ALL CONNECTION MUST MEET NATIONAL AND LOCAL CODES AND REGULATIONS.
2. ADDRESS SCHEDULES REQUIRED.
3. MAXIMUM VOLTAGE FOR ALL UNMARKED CABLE IS 43.5 VDC.
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.

(F)
CAT5E+ - CABLE FOR UPOE NETWORK WIRING CONNECTIONS:
SPECIFICATION: 22AWG 4UTP (8-CONDUCTOR SOLID UNSHIELDED TWISTED PAIR)
TERMINATION: RJ-45 MODULAR PLUG CRIMPED (EIA568B) ON BOTH ENDS
RECOMMENDED: SUPERIOR ESSEX (WWW.SUPERIORESSEX.COM)
PART NO. PW52-H46-X5 (NON-PLENUM) & PW52-H46-X8 (PLENUM) OR COMPATIBLE CABLE

DISTANCE LIMITATION: 328'. MAX. NODES: 1
SEE "CABLE F REFERENCE DRAWING" FOR DETAILED SPECIFICATION.
(FURNISHED & INSTALLED BY OTHERS)

(F1)
CAT5E+ - CABLE FOR NULINK NETWORK WIRING CONNECTIONS:
SPECIFICATION: 22AWG 4UTP (8-CONDUCTOR SOLID UNSHIELDED TWISTED PAIR)
TERMINATION: RJ-45 MODULAR PLUG CRIMPED (EIA568B) ON BOTH ENDS
RECOMMENDED: SUPERIOR ESSEX (WWW.SUPERIORESSEX.COM)
PART NO.PW52-H46-X5 (NON-PLENUM) & PW52-H46-X8 (PLENUM) OR COMPATIBLE CABLE

DISTANCE LIMITATION: 50'. MAX. EIPS: 15
SEE CABLE "F" REFERENCE DRAWING FOR DETAILED SPECIFICATION.
(FURNISHED & INSTALLED BY OTHERS)

(G)
CABLE FOR SPICEBOX TO LIGHT (LOAD) FIXTURE WIRING CONNECTIONS:
SPECIFICATION: 2 TO 12-CONDUCTOR, (18AWG UNSHIELDED)
RECOMMENDED: SUPERIOR ESSEX (WWW.SUPERIORESSEX.COM 1-800-551-8948)
LISTING NO. CL3R/CMR/FPLR (NON-PLENUM), & CL3P/CMP/FPLP (PLENUM)

DISTANCE LIMITATION: VARIES PER LOAD. MAX. LOADS: VARIES BY WATTS
SEE CABLE "G" REFERENCE DRAWING FOR DETAILED SPECIFICATION.
(FURNISHED & INSTALLED BY OTHERS)

EIA 568B CRIMPING - 8 CONDUCTOR CABLE
UPoE CONNECTIONS ON UPoE NETWORK

MODULAR PLUG ASSEMBLY:
RJ45, 8-POSITION, 8-CONTACT
STRAIGHT-THROUGH CABLE TERMINATION BOTH ENDS

CABLE TYPE: CAT5/CAT5e/CAT6

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-**

EIA 568B CRIMPING - 8 CONDUCTOR CABLE
NuLED CONNECTIONS ON NuLINK MECHONET+ (RS485) NETWORK

MODULAR PLUG ASSEMBLY:
RJ45, 8-POSITION, 8-CONTACT
STRAIGHT-THROUGH CABLE TERMINATION BOTH ENDS

CABLE TYPE: CAT5/CAT5e/CAT6

PIN#:	WIRE COLOR:	FUNCTION:
1	ORANGE/WHITE STRIPE	NuLINK RS485+
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**

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.

Technical support

Mecho®
T: +1 (800) 327-9798 (Follow prompts for Mecho® & Tech Support)
E: techsupport@mechoshade.com
W: www.mechoshade.com

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.

Mecho®
INNOVATIVE DESIGN. TRUSTED PERFORMANCE.

NuLEDs
Lighting Over IP

(800) 327-9798
mechoshade.com