Ambient Light Sensor
Datasheet

Stock#	Description
1-AMLS-0001-NUL	Ambient Light Sensor

Description

The Ambient Light Sensor (ALS) is a highly innovative device that digitally measures the amount of light and sends this information to the software to regulate the brightness of lights connected to the network. When integrated with NuLEDs PoE lighting systems, ALS enables efficient daylight harvesting resulting in significant energy savings, cost reduction, customization of lighting control, sustainability compliance, enhanced occupant comfort, and seamless integration for intelligent lighting management.

ALS sensors are part of Environmental Interface Peripherals (EIPs) and are linked with their host SPICEbox's IP address. With the help of Management Software, light-level events can be programmed to control any NuSPICE™ load with scenes and fade times. EIPs can also be programmed using NuPAC™ and Appio.

Integrated with NuLEDs PoE lighting, ALS ensures that artificial lights adjust their intensity or turn off in response to sufficient natural light, reducing unnecessary illumination and maximizing energy savings. ALS enables nuanced control over lighting levels based on available natural light, creating a comfortable and consistent lighting environment.

By leveraging natural light through ALS, the PoE lighting system minimizes reliance on artificial lighting during daylight hours, leading to substantial cost savings on energy bills. Utilizing ALS for daylight harvesting in conjunction with PoE lighting systems reduces energy consumption and supports green building initiatives and certifications.

NuLEDs PoE lighting systems often allow for integrating various sensors, including ALS, using CAT cable for fast plug-and-play installation. Overall, ALS integrated with PoE lighting creates a more natural and comfortable lighting environment for occupants, positively impacting mood, productivity, and overall well-being.

Features

- **Optimized Energy Efficiency:** Detects natural light levels and maximize energy savings by reducing artificial light usage during daylight hours.

- **Sustainability and Green Building Compliance:** Environment friendly product and adheres to green building standards by leveraging natural light by utilizing ALS for daylight harvesting

- **Easy to Install and Manage:** Powering the system through Cat5 cables is effortless, ensuring you can set up the system quickly and efficiently.

- **Customizable and Scalable:** Customizable lighting system that can be managed to meet maximum system performance requirements.

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Specifications

Equipment Kit	
Includes	Ambient Light Sensor, Installation Guide
Hardware	
Standby Power	0.5 Watts
Power Supply	SPICEbox™ PoE
Input Power	NULINK™ Bus
Input Voltage	5VDC
RJ45 Ports	2 X RJ45 ports connecting to SPICEbox™ (Only need to plug-in one)
Protocols	NuSPICE™, CoAP
Control Interface	NuLEDs™ NuPAC NuLEDs™ APPIO
Wiring	CAT5e or CAT6 Ethernet Cable (328 ft. (100 m.)
Maximum Wiring Length	50 ft. low baud rate and no terminations
Mechanical	
Dimensions (L X W X D)	1.00 in. (25.40 mm) x 2.00 in. (50.80 mm) x 2.500 in. (63.50 mm)
Weight	27 gm.
Mounting	Wall or surface mounted. Cut-in 2.25" Hole with torsion springs.
Dimming	Programmable with NuSPICE™
Environmental	
Operating Temperature	32º to 104ºF (0º to 40ºC) ambient
Humidity	10-80% Non-Condensing
Agency Listings and Compliance	
UL Listed UL60950-1 (As SPICebox™ accessory)	
FCC Class A Compliant	
CE Compliant	
RoHS	

Mounting and Dimensions

1. Cut-in 2.25" Hole with torsion springs.

2. Mount it on a wall or flat-surface.

⚠️ **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.
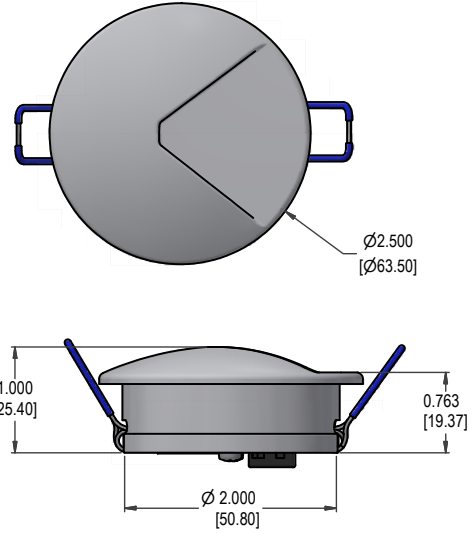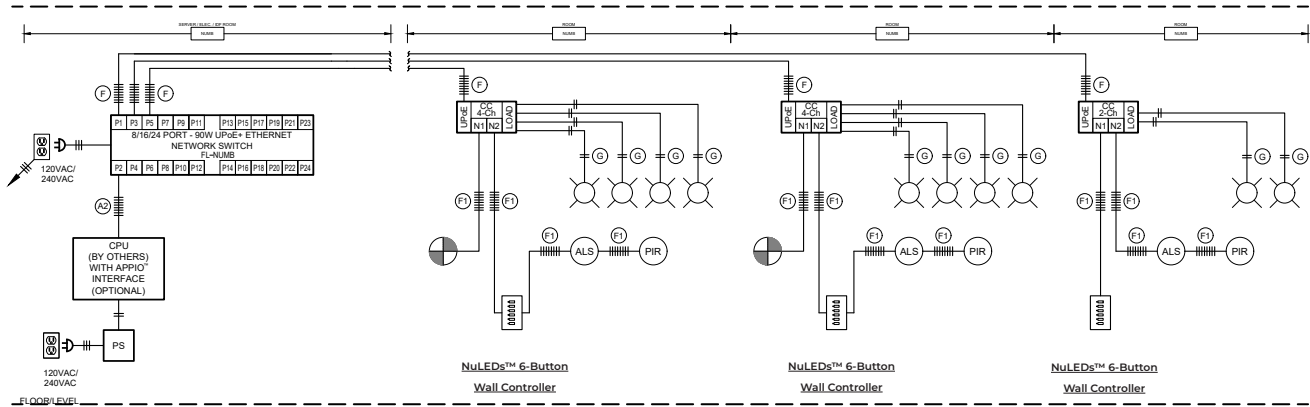

⚠️ Warning

- **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 CE, FCC standards
- **Warranty** - Voided if device has been modified from its original configuration.

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NuLINK™ Network Wiring Diagram - Constant Current

NOTE: Refer to page 9 for the Low Voltage Cable Legend and Crimping Instructions.

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NuLINK™ Network Wiring Diagram - Constant Voltage and Current

NOTE: Refer to page 9 for the Low Voltage Cable Legend and Crimping Instructions.

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Point-to-Point Diagram - ALS UPoE Integration & NuLINK™ Network
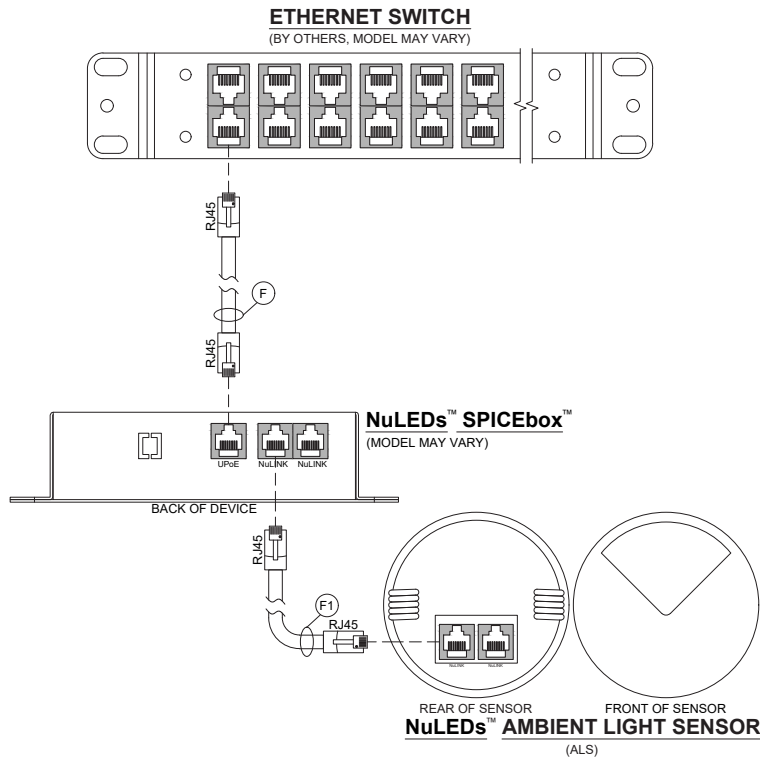
ETHERNET SWITCH
(BY OTHERS, MODEL MAY VARY)

RJ45

F

RJ45

NuLEDs™ SPICEbox™
(MODEL MAY VARY)

UPoE   NuLINK   NuLINK

BACK OF DEVICE

RJ45

F1
RJ45

REAR OF SENSOR   FRONT OF SENSOR
NuLEDs™ AMBIENT LIGHT SENSOR
(ALS)

NOTE: Refer to page 9 for the Low Voltage Cable Legend and Crimping Instructions.

Ambient Light Sensor
Datasheet

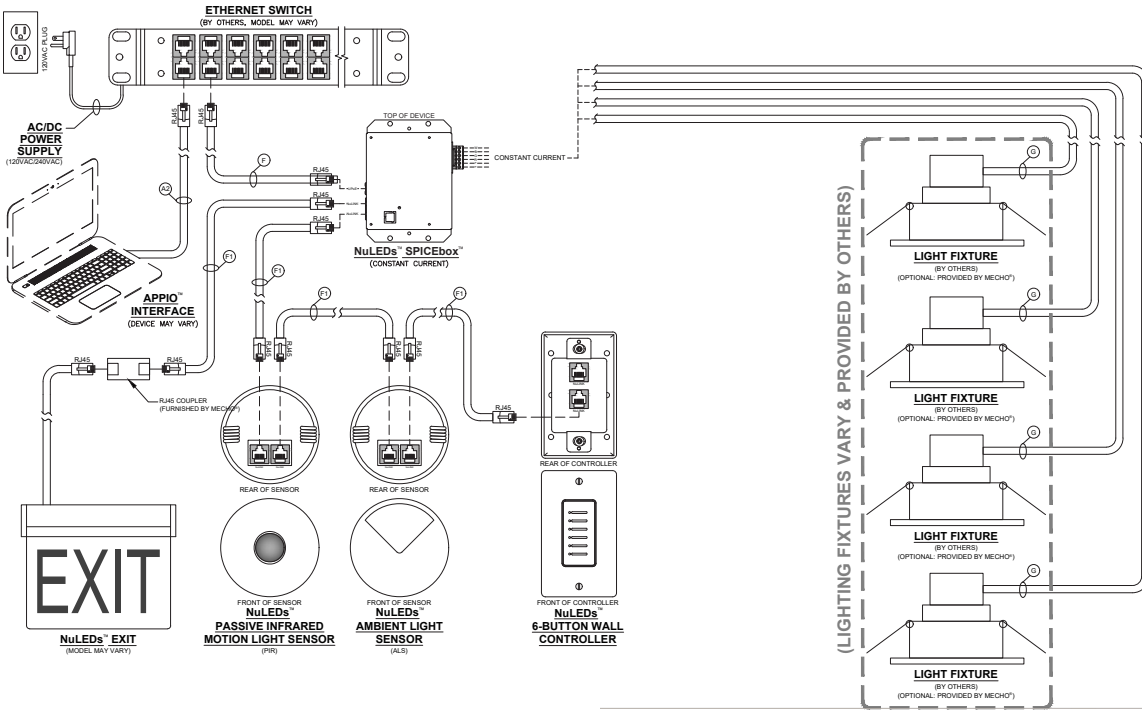### Point-to-Point Diagram

NOTE: Refer to page 9 for the Low Voltage Cable Legend and Crimping Instructions.

Ambient Light Sensor
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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 STRANGED 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:
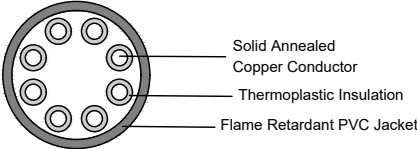
	Plastic Spool		Reel-in-a-Box		Wood Reel	Shrink Wrap	
	1,000'	500'	1,000'	500'	1,000'	250'	500'
[1]Replace "x" with:	2	3	4	5	6	7	8

Lighting Over IP

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	CHARACTERISTIC IMPEDANCE Ohms:	100 ± 15
CONDUCTOR:	SOLID ANNEALED COPPER	NOMINAL VELOCITY OF PROPAGATION %:	CMR: 71 CMP: 74
AWG (mm):	22 (0.51)	PERFORMANCE COMPLIANCE:	UL 444
INSULATION:	CMR: POLYOLEFIN CMP: FEP		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
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	NRTL PROGRAMS:	UL Verified CAT 5e UL, c(UL) Listed CMR UL, c(UL) Listed CMP HDBaseT Certified
JACKET:	CMR: FLAME RETARDANT (FR) PVC CMP: FR, LOW SMOKE PVC	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	

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Low Voltage Cable Legend and Crimping Instructions

(A2) CAT5E/6 - CABLE FOR ETHERNET WIRING CONNECTIONS:
24AWG 4UTP (8-CONDUCTOR STRANDED UNSHIELDED TWISTED PAIR)
TERMINATION: RJ-45 MODULAR PLUG CRIMPED (EIA568B) ON BOTH ENDS
RECOMMENDED: OLYMPIC WIRE AND CABLE (WWW.OLYMPICWIRE.COM 1-800-526-2269)
PART NO. 3078M5F-8 (NON-PLENUM) OR COMPATIBLE CABLE.
------------------------OR------------------------
24AWG 4UTP (8-CONDUCTOR SOLID UNSHIELDED TWISTED PAIR)
TERMINATION: RJ-45 MODULAR PLUG CRIMPED (EIA568B) ON BOTH ENDS
RECOMMENDED: OLYMPIC WIRE AND CABLE (WWW.OLYMPICWIRE.COM 1-800-526-2269)
PART NO. 3604M5UC-9 (PLENUM) OR COMPATIBLE CABLE.

DISTANCE LIMITATION: 325'. MAX. NODES: 2.
SEE "CABLE A REFERENCE DRAWING" FOR DETAILED SPECIFICATION.
(FURNISHED & INSTALLED BY OTHERS)

(F) CAT5E+ 4PPOE - CABLE FOR UPOE NETWORK WIRING CONNECTIONS:
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:
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:
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

EIA 568B CRIMPING - 8 CONDUCTOR CABLE
ETHERNET NETWORK CONNECTIONS

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	TX+
2	ORANGE SOLID	TX-
3	GREEN/WHITE STRIPE	RX+
4	BLUE SOLID	N/C
5	BLUE/WHITE STRIPE	N/C
6	GREEN SOLID	RX-
7	BROWN/WHITE STRIPE	N/C
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 (718) 729-2020, x2006 OR Prompt 4
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.

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