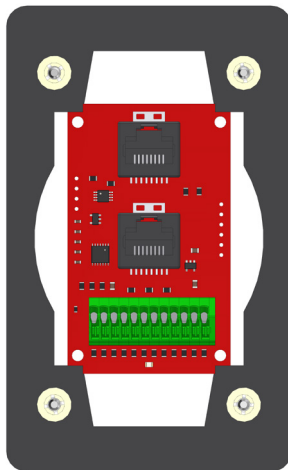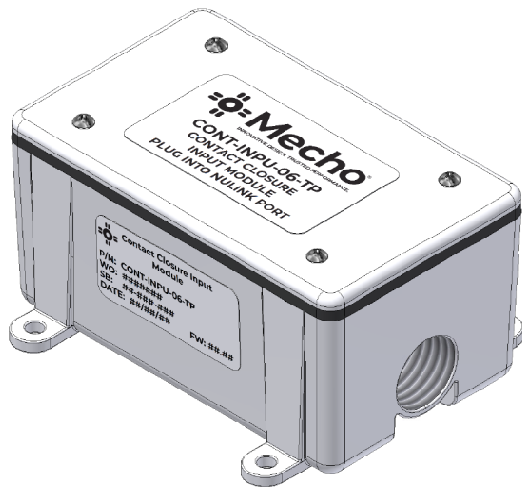# Contact Closure Input Module
Datasheet

Description

The NuLEDs Input Module is a versatile and scalable solution designed to enhance the integration and control of multiple systems within a space. Featuring 6 dry contact closure inputs, this board enables seamless communication and interaction with a variety of devices, including sensors, switches, and third-party control systems. Its robust design ensures reliability, flexibility, and ease of use, making it an ideal choice for customized and automated control scenarios.

The Input Module delivers reliable performance and enhanced control capabilities, providing an adaptable and future-ready platform for managing integrated systems efficiently.

Stock#	Description
CONT-INPU-06-TP	Contact Closure Input Module

Features

1. **Versatile Integration**
   - Interfaces with a wide range of systems using dry contact closures.
   - Compatible with sensors, switches, relays, and third-party control systems.

2. **Expandable Capacity**
   - Six input channels for connecting multiple devices or sensors.
   - Easily add additional boards for system expansion.

3. **Flexible Control**
   - Configurable inputs to trigger actions within the NuLEDs PoE lighting system or other integrated systems.
   - Supports control of lighting, HVAC, security features, and more.

4. **Seamless Automation**
   - Automates responses based on external triggers, such as occupancy sensors or manual switches.
   - Enables automatic lighting adjustments and custom scene activations.

5. **Enhanced Customization**
   - Tailor control scenarios to meet specific needs.
   - Supports programming for unique interactions, including Demand Response triggers.

6. **Reliability and Compatibility**
   - Proven reliability of dry contact closures ensures seamless communication.
   - Compatible with a broad range of devices and systems.

7. **Scalability and Future-Proof Design**
   - Modular design allows for easy expansion and adaptation to new technologies.
   - Accommodates evolving system requirements over time.

8. **Plug-and-Play Installation**
   - Uses CAT cables for quick and easy setup
   - Integrates seamlessly with NuLEDs PoE lighting systems, supporting ALS, PIR sensors, and wall controllers.

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

(800) 327-9798
mechoshade.com

Contact Closure Input Module
Datasheet

Specifications

Equipment Kit	
Contact Closure Input Module, Installation Guide	
Hardware	
Standby Power	<1 Watt
Power Supply	SPICEbox™ NuLINK™ Bus
RJ45 Ports	2 Ports
Protocols	NuSPICE™
Wiring	Category 5e/6 Ethernet cable to EIP SPICEBox
Maximum Wiring Length	50' from SPICEbox™
Mechanical	
Dimensions (L X W X H)	6.4 in. x 5.08 in. x 1.48 in. (162.56 mm x 129.03 mm x 37.59 mm)
Weight	~0.48 lbs. (~0.21 kg)
Mounting	Housing Wall mounted with screws and wall anchors.
Dimming	Programmable with NuSPICE™
Environmental	
Operating Temperature	32º to 104ºF (0º to 40ºC) ambient
Humidity	10-80% Non-Condensing
Agency Listings and Compliance	
FCC Class A Compliant	
CE Compliant	
RoHS	

Dimensions

⚠ Warning

- **Caution** - Observe precautions for handling electrostatic sensitive devices.
- 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.
- Conforms to CE, FCC standards
- **Warranty** - Voided if device has been modified from its original configuration.

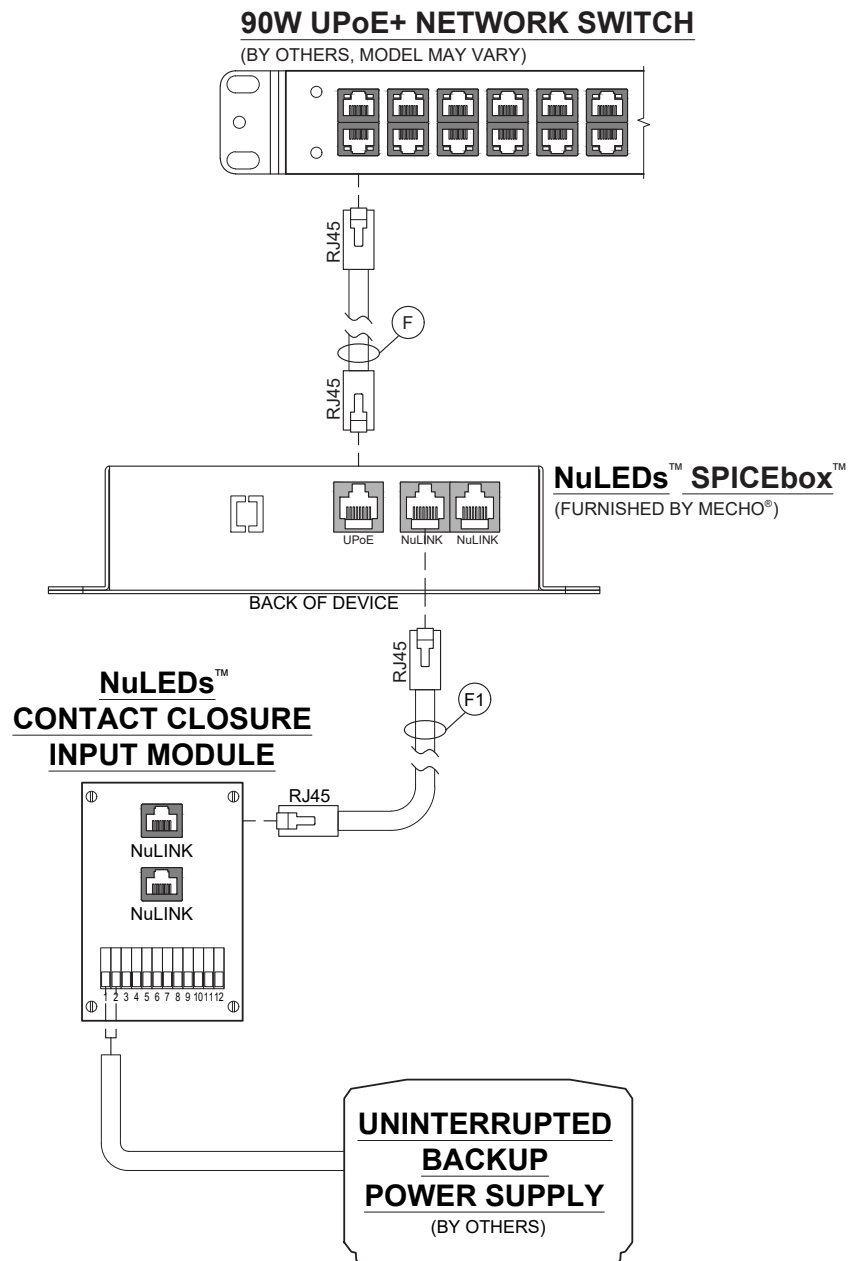Mecho® INNOVATIVE DESIGN. TRUSTED PERFORMANCE. NuLEDs Lighting Over IP
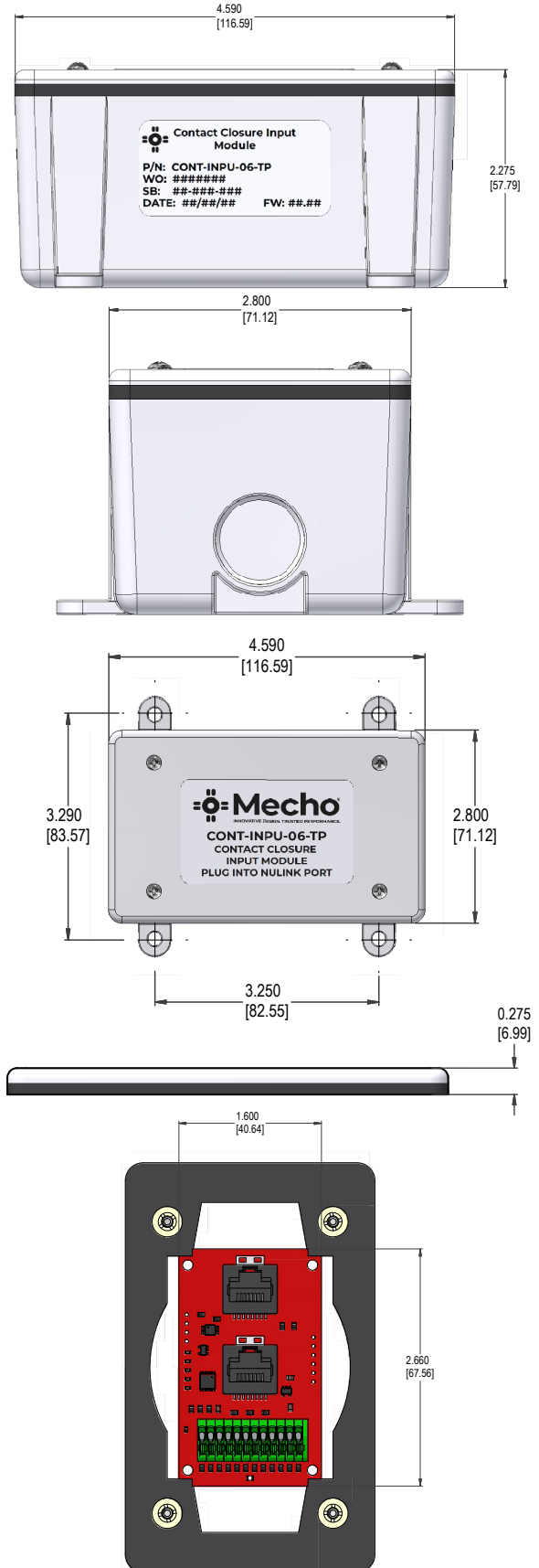
(800) 327-9798
mechoshade.com

Contact Closure Input Module
Datasheet

Contact Closure Input Module on UPoE & NuLink™ Network

NOTE: Only one Contact Closure Input Module can be connected per SPICEbox™.

90W UPoE+ NETWORK SWITCH
(BY OTHERS, MODEL MAY VARY)

RJ45

F

RJ45

NuLEDs™ SPICEbox™
(FURNISHED BY MECHO®)

UPoE   NuLINK   NuLINK

BACK OF DEVICE

RJ45

F1

**NuLEDs™
CONTACT CLOSURE
INPUT MODULE**

NuLINK

NuLINK

RJ45

1 2 3 4 5 6 7 8 9 10 11 12

**UNINTERRUPTED
BACKUP
POWER SUPPLY**
(BY OTHERS)

NOTE: Refer to page 7 for the Low Voltage Cable Legend and Crimping Instructions.

Contact Closure Input Module
Datasheet

Point-to-Point Diagram
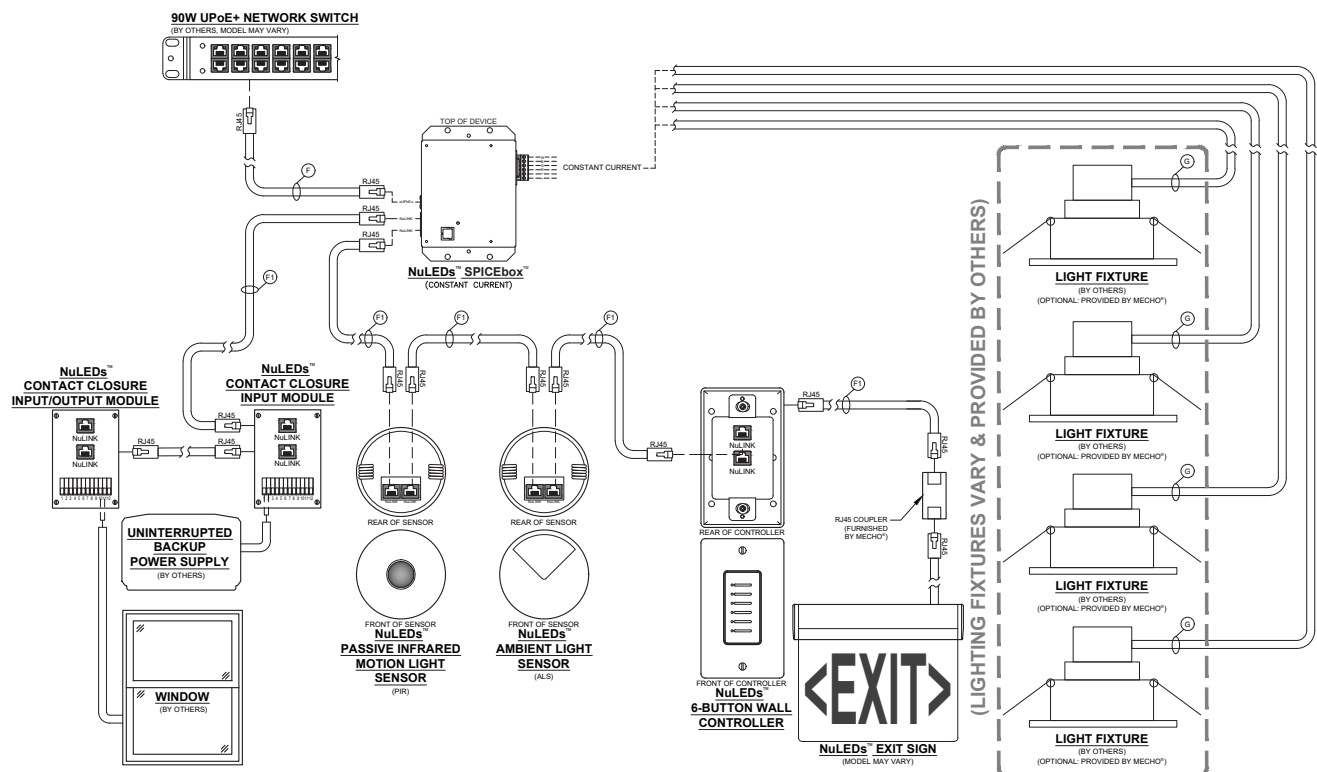
NOTE: Refer to page 7 for the Low Voltage Cable Legend and Crimping Instructions.

Contact Closure Input Module
Datasheet

Point-to-Point Diagram - Constant Current 2 Channel Port Connections

PIN#	FUNCTION	PIN#
SPICEBOX LOAD PORT WIRING PIN OUT		
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 - Constant Current 4 Channel Port Connections

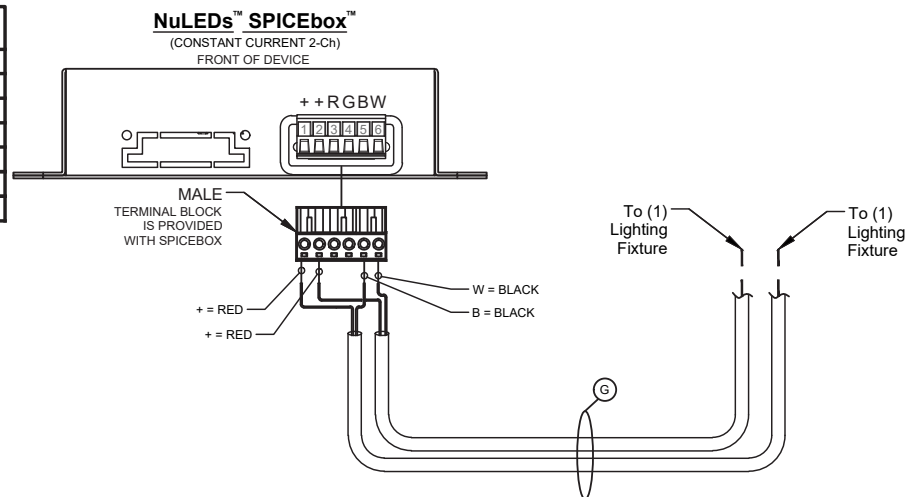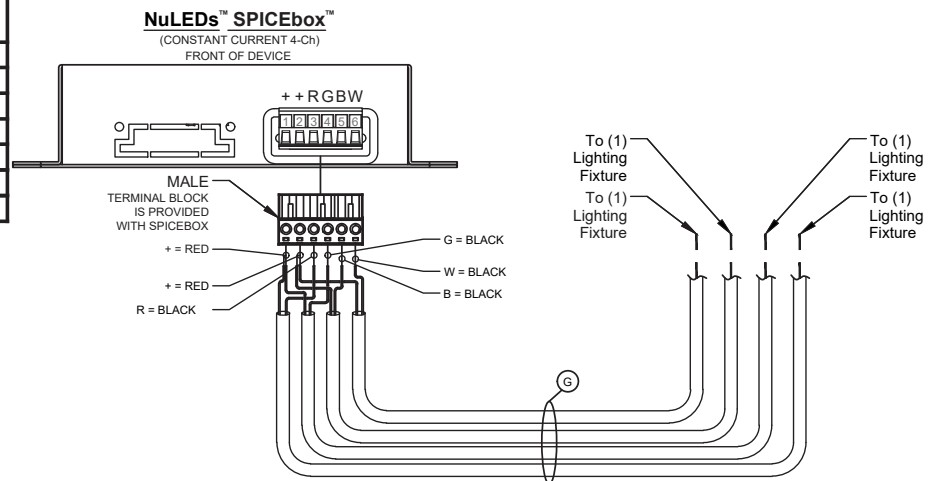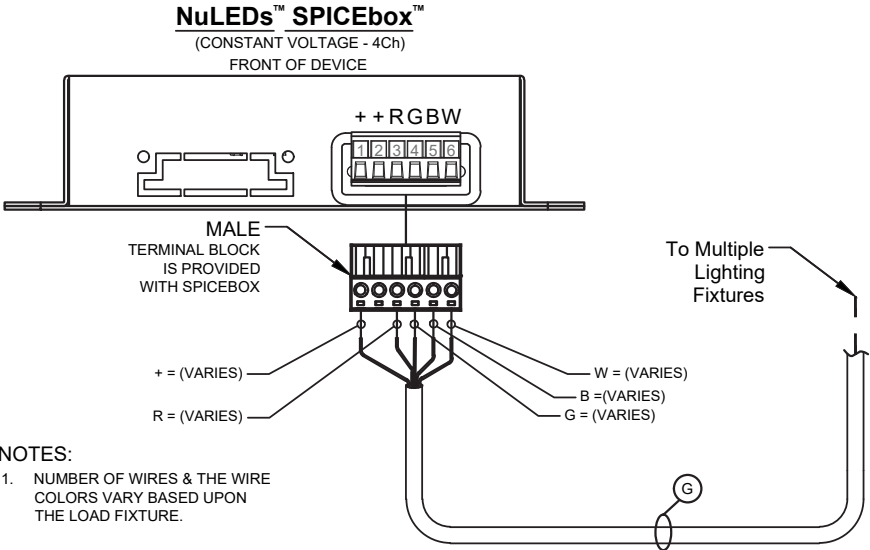| SPICEBOX LOAD PORT WIRING PIN OUT		
PIN#	FUNCTION	PIN#
1	POWER (+)	1
2	POWER (+)	2
3	R CHANNEL	3
4	G CHANNEL	4
5	B CHANNEL	5
6	W CHANNEL	6

NOTE: Refer to page 11 for the Low Voltage Cable Legend and Crimping Instructions.
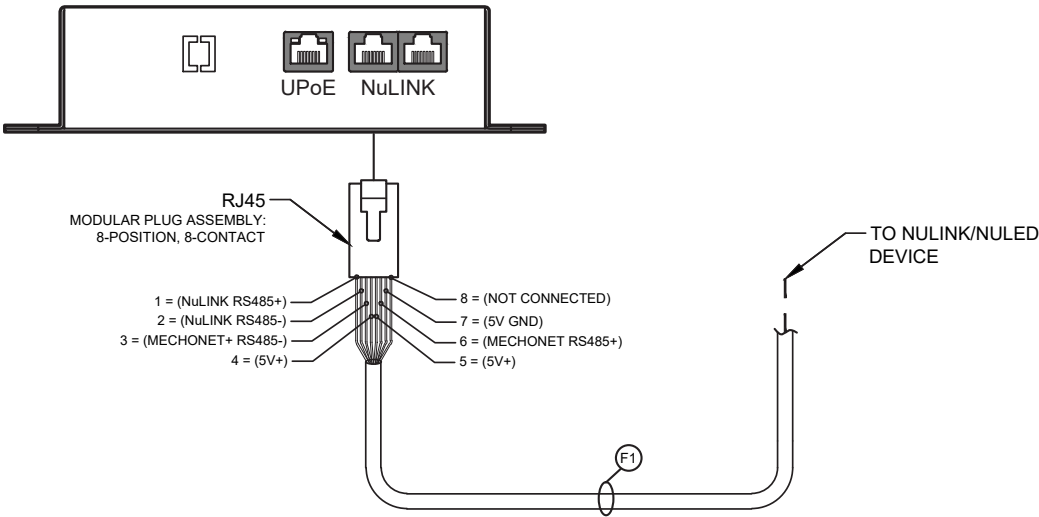
Contact Closure Input Module
Datasheet

Point-to-Point Diagram - Constant Voltage Port Connections

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

+ = (VARIES)
R = (VARIES)
W = (VARIES)
B = (VARIES)
G = (VARIES)

To Multiple Lighting Fixtures

G

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

NuLINK MECHONET+ (RS485) PINOUT			
CABLE TYPE: CAT5/CAT5e/CAT6			
	PIN#:	WIRE COLOR:	FUNCTION:
CATX CRIMP	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

Point-to-Point Diagram - NuLINK Port Connections

UPoE   NuLINK

RJ45
MODULAR PLUG ASSEMBLY:
8-POSITION, 8-CONTACT

1 = (NuLINK RS485+)
2 = (NuLINK RS485-)
3 = (MECHONET+ RS485-)
4 = (5V+)
8 = (NOT CONNECTED)
7 = (5V GND)
6 = (MECHONET RS485+)
5 = (5V+)

TO NULINK/NULED DEVICE

F1

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

(800) 327-9798
mechoshade.com

Contact Closure Input Module
Datasheet

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

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

(800) 327-9798
mechoshade.com

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	NRTL PROGRAMS:	UL Verified CAT 5e
NOMINAL VELOCITY OF PROPAGATION %:	CMR: 71		UL, c(UL) Listed CMR
	CMP: 74		UL, c(UL) Listed CMP
PERFORMANCE COMPLIANCE:	UL 444		HDBaseT Certified
	CSA C22.2 No. 214-08	SUSTAINABILITY:	UL Certified EPD
	UL 1666		HPD
	NFPA 262		USGBC® Member
	ANSI/TIA-568-C.2		RoHS-compliant/RoHS 2-compliant
	ANSI/ICEA S-90-661-2012		REACH-compliant
	Article 800, NEC (NFPA 70)		
	HDBaseT Class A and B		Temperature cable rating: 75°C
			for CMR and 90°C for CMP

PART NUMBERS AND PHYSICAL CHARACTERISTICS

Listing	Part Number¹	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
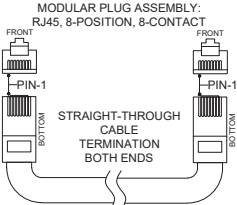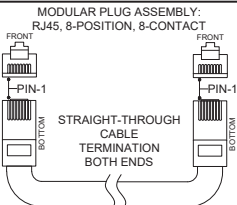
¹Replace "x" with:	Blue = 2	Gray = 3	White = 4	Green = 5
Yellow = 6	Purple = 7	Red = 9	Black = E	

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

Contact Closure Input Module

Datasheet

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

(800) 327-9798
mechoshade.com