

Specifications

Customer's Part Number:

MOONS' Part Number:

4696355000211

Model:

NPSUGMDHB

P/N:

A8768

CUSTOMER'S APPROVAL STAMP

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Please sign back after your approval. The specifications will come into force when we receive purchase order.

DWG.	CHK.	STANDARD	APPD.

Subject to change without notice

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History Version

[illegible]

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1 DESCRIPTIONS

The Wireless Node Controllers can be installed in the lighting control box, lamp chamber or installed self-contained under eaves or other sheltered areas due to the solid metal enclosure.

It is very small size and excellent waterproof.

It can automatically identify different types of LED driver, such as 0-10V, DALI-2/D4i and DMX(RDM).

Supports 2 channels 0-10V for color temperature adjustment.

Supports RGBW color.

Supports dynamic scenes and animations.

It communicates with the gateway through a WPAN (Sub-GHz).

Self-building and self-healing MESH Network.

The sensor interface supports sensor access with digital and analog outputs.

1.1 FEATURES

- Input voltage:12-30VDC.
- Power consumption: < 1W.
- Wireless communication: IEEE 802.15.4-915MHz.
- Automatically identify dimming mode.
- DMX(RDM) master, up to 6 loads.
- DALI-2/D4i Single-Master Controller, up to 6 loads.
- 2 channels of 0-10V Dimmer, up to 4 loads each channel.
- RGBW color support
- Dynamic scenes and animations
- 1 channel of sensor sample input.
- Save several dimming plans.
- Firmware upgrade: OTA.
- Embedded communication encryption mechanism.
- Radio frequency certification: FCC
- Warranty: 5years.



2 CHARACTERISTICS

2.1 ELECTRICAL CHARACTERISTICS

At 20 °C, 50% RH, 100Kpa conditions.

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input voltage ⁽¹⁾		12	24	30	VDC
Power consumption		0.2	/	1.0	W
Dimming voltage	DA, DB	-6	/	22.5	V
DMX voltage	DA, DB to GND	-3.3	/	+3.3	V
DMX current	DA to DB short	/	/	70	mA
DMX Baud rate		/	250	/	Kbps
DALI BUS voltage	DA to DB	0	/	20.5	V
DALI high level voltage	DA to DB	9.5	/	22.5	V
DALI low level voltage	DA to DB	-6.5	/	6.5	V
DALI BUS current	Not transmitting	0.5	/	2	mA
	Transmitter sink	/	/	1000	mA
0-10V output voltage ⁽²⁾	DA, DB to GND	0	/	11	V
0-10V current	Each channel	/	/	10	mA
Sensor Sample voltage		0	/	11	V
WPAN transmission distance		/	/	300	m
WPAN band	915M	904	/	926	MHz
WPAN receiver sensitivity		-100	/	/	dBm
WPAN transmitter power		/	/	20.5	dBm

Note:

- (1) In the case of DALI-2/D4i mode, the input voltage needs to be higher than the DALI BUS voltage.
- (2) When the input voltage is 12V, 0-10V can output 10V at most; When the output voltage is > 12V, 0-10V can output 11V.

2.2 OPERATING CONDITIONS

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Operating temperature		-40	/	+70	°C
Storage temperature	Dry indoor, well-ventilated place	-40	/	+85	°C
Relative humidity	No frost	10	/	95	%
Vibration		/	/	1	G
Warranty		/	5	/	Years
Ingress protection classification	Not Installed	IP66			
Flammability		UL94-V0			

2.3 EMC

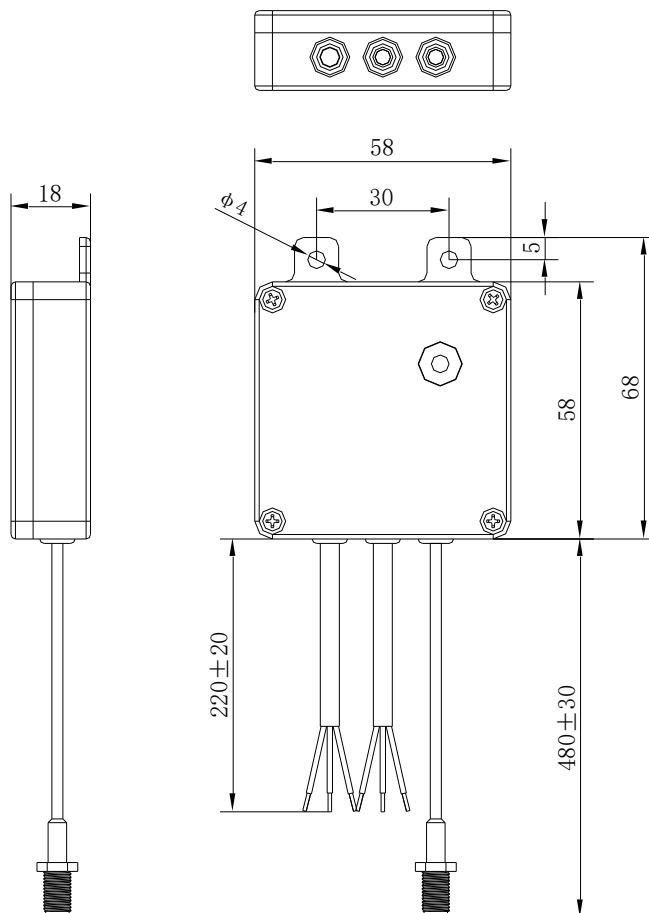
TYPE	Standard	Test level
Electrostatic discharge immunity	IEC61000-4-2	Level 2
RFEMS	IEC61000-4-3	Level 2
Electrical fast transient burst immunity	IEC61000-4-4	Level 4
Surge Immunity	IEC61000-4-5	Level 2
Conducted disturbances induced by RF field immunity	IEC61000-4-6	Level 3
Power frequency magnetic field immunity	IEC61000-4-8	Level 3

2.4 CERTIFICATION

TYPE	Standard
Electromagnetic interference characteristics certification	FCC ID: 2BRS4-NPSUGMDHB FCC 47 CFR Part15 B Class B; FCC 47 CFR Part15 C (915M WPAN);
Energy	DLC-indoor/outdoor
Operability	DALI-2/D4i: IEC62368-PART 101; IEC62368-PART 103; IEC62368-PART 251; IEC62368-PART 252; IEC62368-PART 253; IEC62368-PART 351; (Type D –Single-Master Controller)

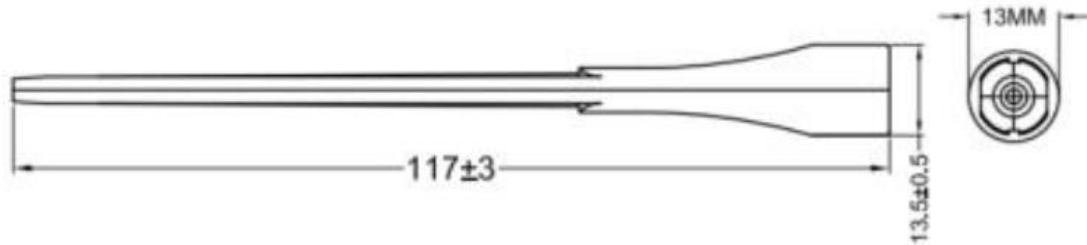
3 MECHANICAL DATA

3.1 DIMENSIONS

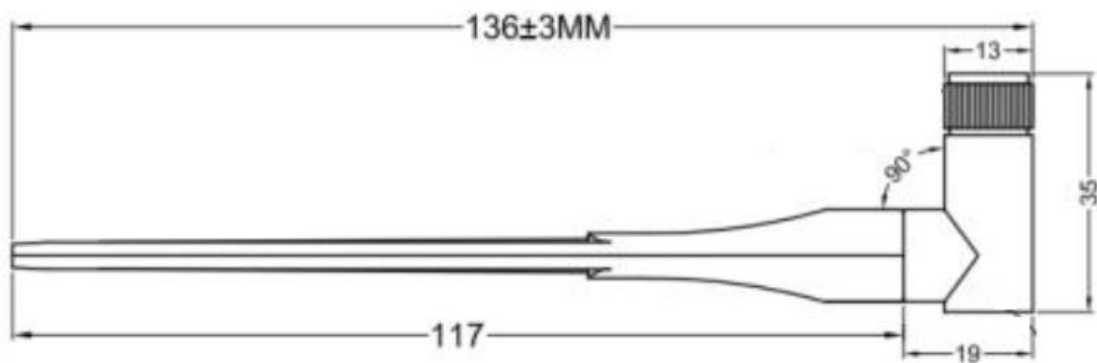


3.2 ANTENNA

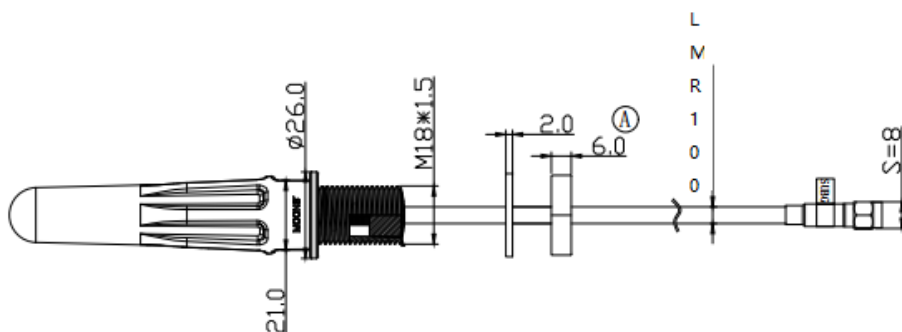
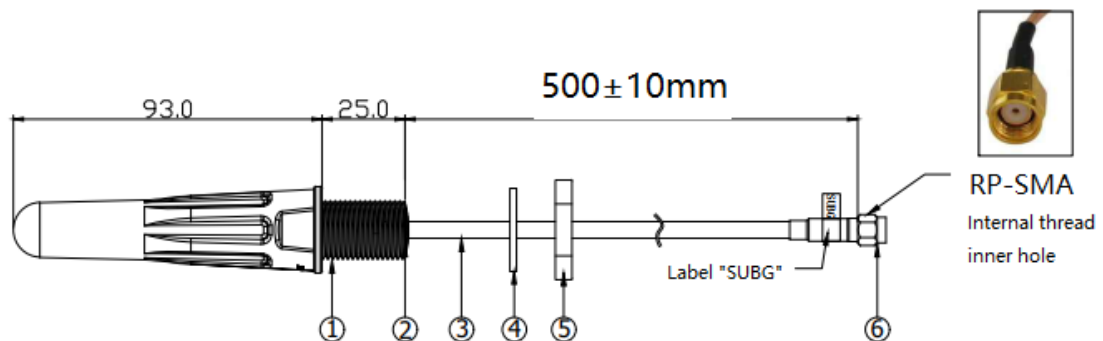
Optional accessories



Straight Whip Antenna (RP-SMA connect)

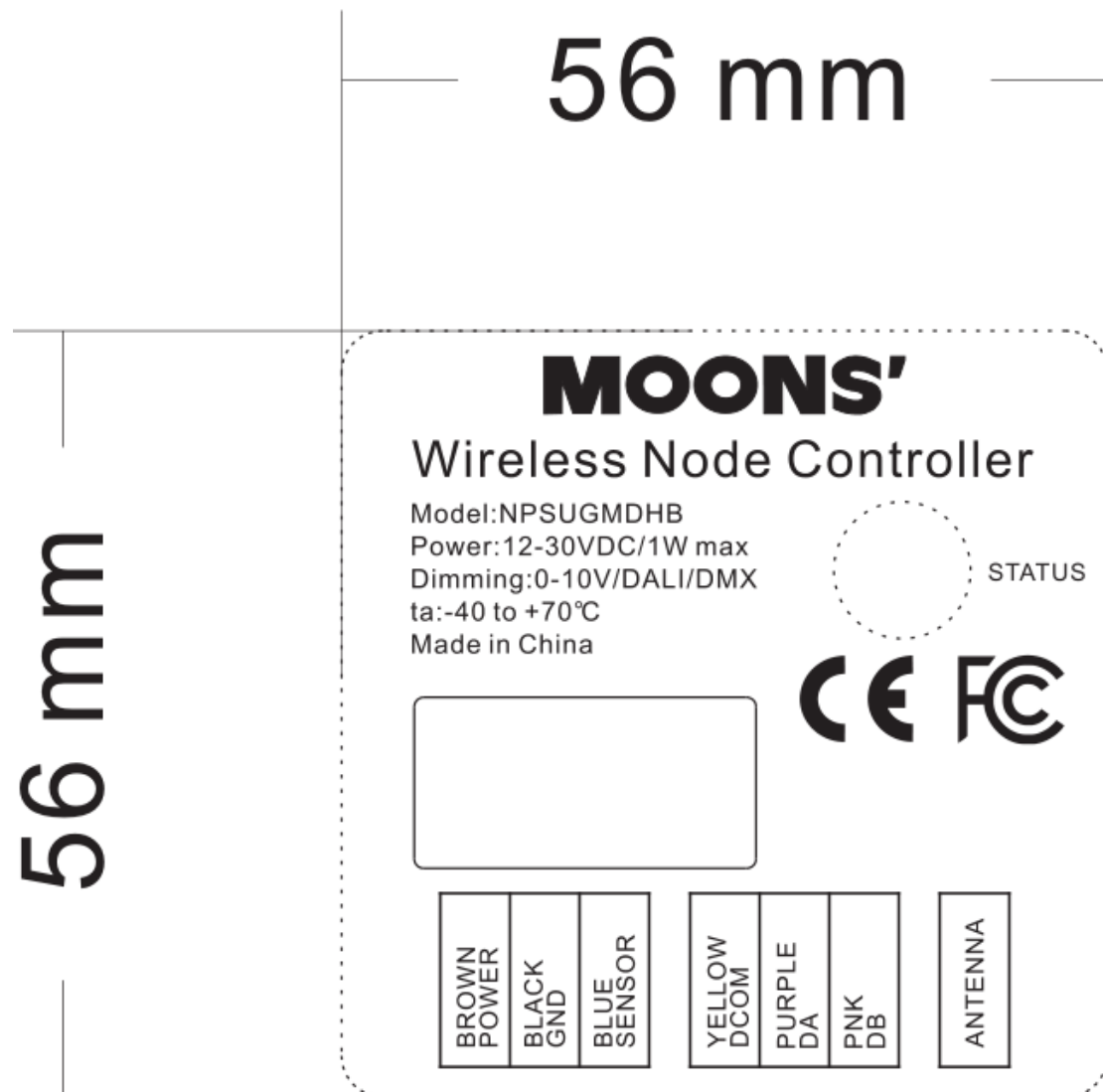


Right Angle Whip Antenna (RP-SMA connect)



M18 Antenna (RP-SMA connect)

3.3 LABEL



Product barcode information:

The last 8 digits of SN represent the communication address of the product.

“A” indicates that this product operates in the American frequency band;

The QR code shows the product's communication address.

4 FUNCTION DESCRIPTIONS

4.1 INTERFACES

Name	COLOR	Description
POWER	Brown	Power supply input DC +
GND	Black	Power supply input DC -; Dimming /sensor Common port;
SENSOR	Blue	Sensor sample input +
DCOM	Yellow	Dimming /sensor Common port; DMX shielding.
DA	Purple	0-10V Dimming+ channel 1; DMX data +; DALI bus +.
DB	Pink	0-10V Dimming+ channel 2; DMX data -; DALI bus -.
ANTENNA	Black	Sub-GHz communication antenna interface.

4.2 WPAN MODULE

- Communicate with the Gateway. Transfer various instructions, such as: dimming command, upload power metering data, set parameters and query telemetries accordingly and so on.
- Wireless communication: IEEE 802.15.4-Sub-GHz.
- Embedded communication encryption mechanism.

4.3 DIMMING

- Once the device is powered up, it will automatically identify the dimming mode (DALI-2/D4i / DMX(RDM) /0-10V) of the connected load. After recognition, it will automatically report its own running dimming mode and perform necessary operation in this way.

Notice:

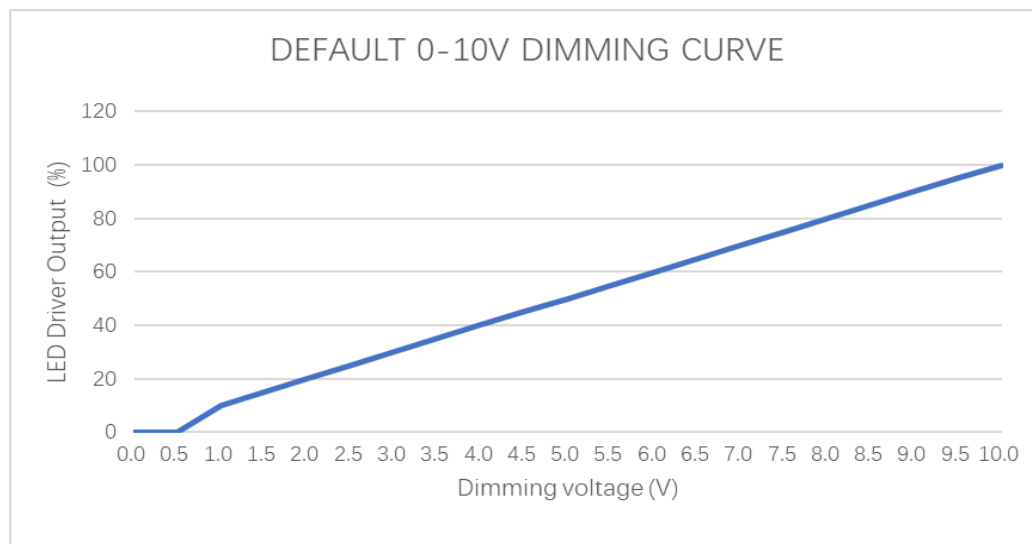
- To achieve perfect recognition of the dimming type, it is recommended that the controller and the LED driver be powered on simultaneously, or the controller be powered on later than the LED driver.

4.3.1 0-10V DIMMING

- If it is identified as 0-10V dimmer, it can support 2-channel independent 0-10V dimming, which can support adjusting the color temperature (tunable white LED driver and software configuration are required).
- The DIM-TO-OFF LED drivers should be used; the LED drivers' output will turn off once the dimming voltage is $< 0.5V$.
- Support positive and negative logic dimming (configuration required).
- If each channel is connected to multiple LED drivers, the maximum output current of each channel is 10mA, and if the load current is $> 10mA$, the output voltage will be not accurate.

Notice:

When the input voltage is 12V, 0-10V can output 10V at most; When the output voltage is $> 12V$, 0-10V can output 11V.



4.3.2 DMX(RDM)

- If identified as a DMX(RDM) master, it can support up to 6 loads (maximum 3 slots for each load) and can be automatically addressed to support RDM instructions.
- 4 loads are recommended.

4.3.3 DALI-2/D4i

- If identified as a DALI-2/D4i Single-Master Controller, up to 6 loads (one address for each load) can be supported, supporting IEC62386-101/103/251/252/253/351 (TYPE D).
- 4 loads are recommended.

Notice:

- At least one of the DALI-2/D4i LED drivers needs to be set to supply power to the DALI bus.
- Maximum of 6 DALI-2/D4i LED Drivers, any DALI-2/D4i LED Drivers >4 will need the power supply disabled
- In the case of DALI-2/D4i mode, the input voltage needs to be higher than the DALI BUS voltage.

4.4 SENSOR INPUT

- 1 channel of sensor input interface.
- Sensors with 0-10V output can be accessed.
- Passive digital output can be accessed.
- Sensors must be configured in software before it is functional in system.

4.5 INDICATOR LIGHTS

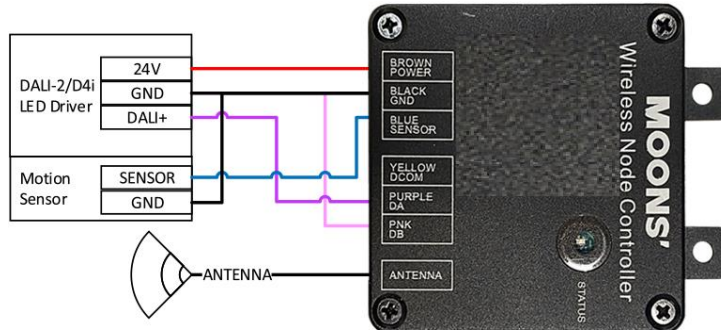
Color	Status	Indicate
/	OFF	No Power
RED	ON	Initial process or some failure/error happened
BLUE	Flash	Trying to identify the dimming type (DALI-2/D4i/DMX(RDM)/0-10V)
Purple ⁽¹⁾	ON	Incorrect wiring
GREEN	Flash	Trying to join the network
	ON	work well

Notice:

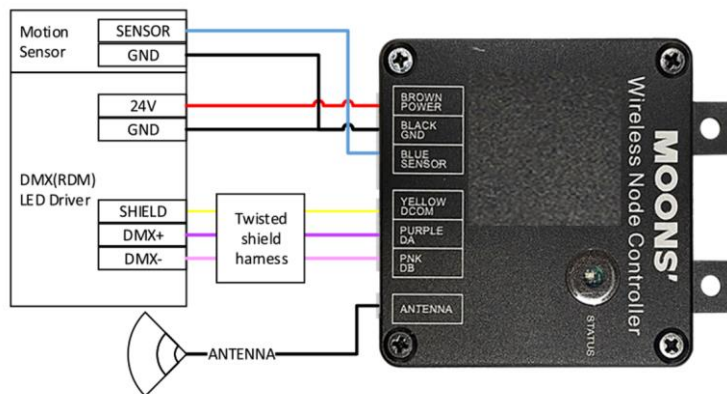
- (1) Purple light indicates that the communication between node controller and LED driver is lost. This might be due to use wrong LED driver or LED driver is not power on or wiring error (for example the reverse connection of the DMX bus). Please check the wiring connection or the power-on status of the LED driver, and then re-power the node controller.

5 INSTALLATION

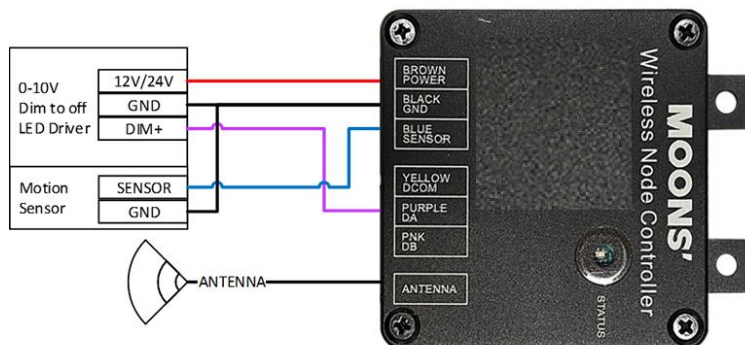
5.1 For DALI-2/D4i applications with sensor



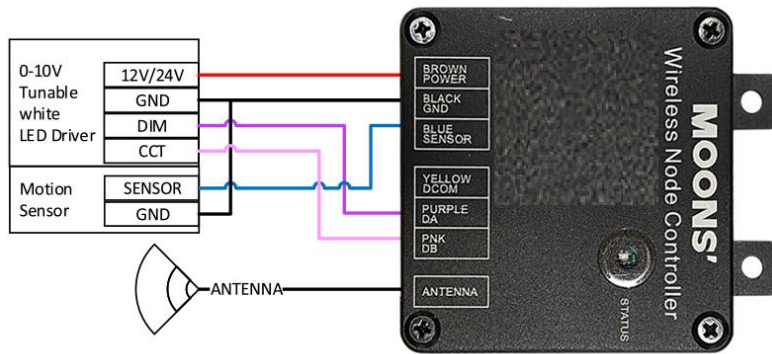
5.2 For DMX(RDM) applications with sensor



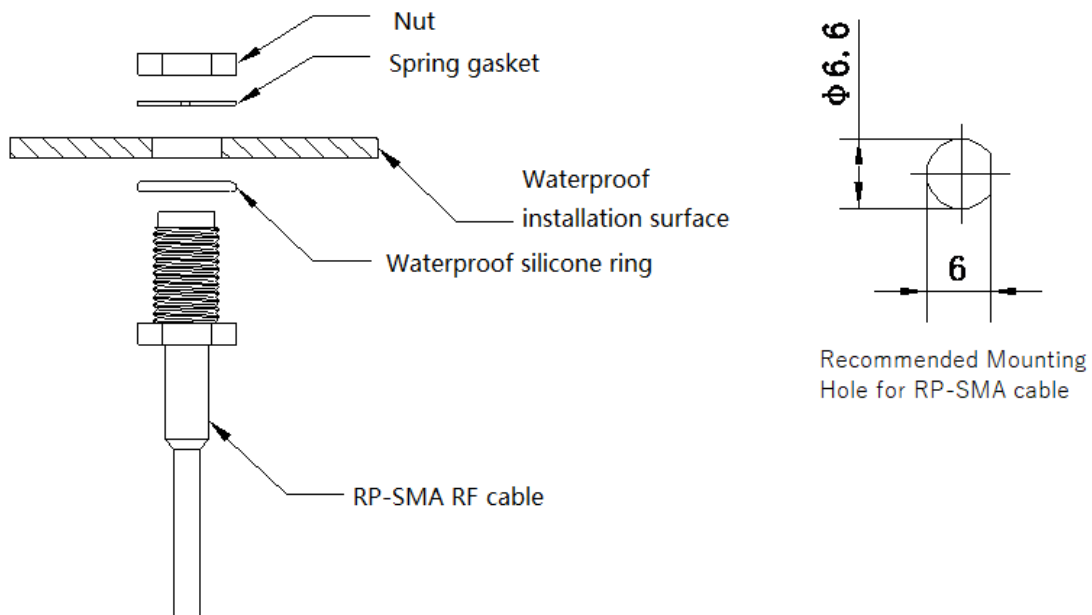
5.3 For 0-10V Dim to off applications with sensor



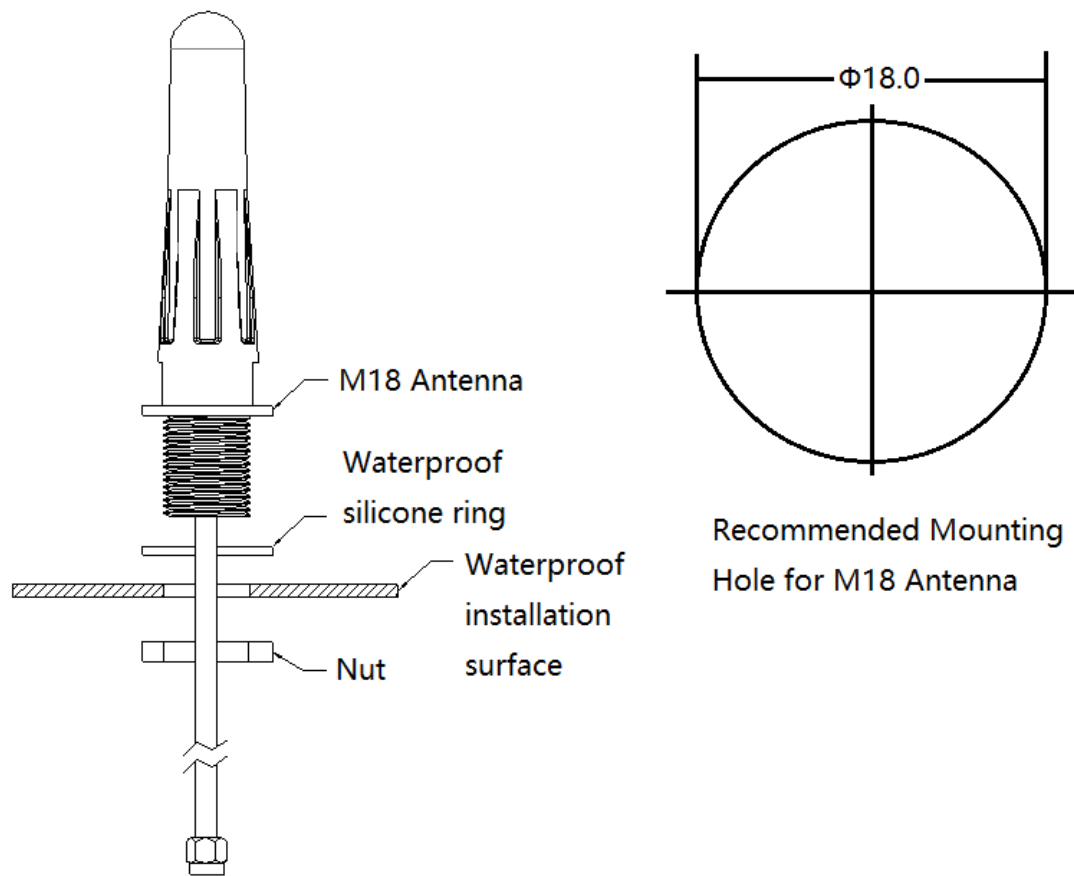
5.4 For 0-10V Tunable white applications with sensor



5.5 Recommended installation of antenna interface



5.6 Recommended installation of M18 Antenna



6 ORDERING

DESCRIPTION	ORDERING CODE
NPSUGMDHB 3in1 Wireless Node Controller (without Antenna)	4696355000211
Straight Whip Antenna (RP-SMA connect)	4741135000149 (Optional accessories)
Right Angle Whip Antenna (RP-SMA connect)	4741135000150 (Optional accessories)
M18 Antenna (RP-SMA connect)	4741135000153 (Optional accessories)

FCC Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution: The user is cautioned that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To maintain compliance with FCC's RF Exposure guidelines, This equipment should be installed and operated with minimum distance between 20cm the radiator your body: Use only the supplied antenna.

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