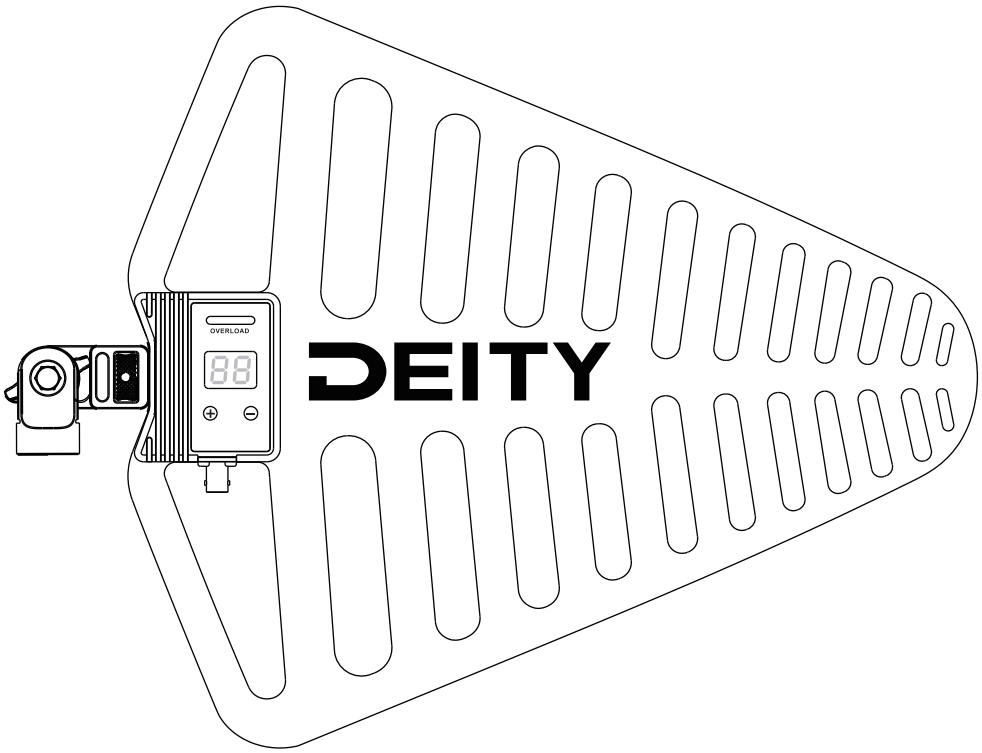
DEITY®
MICROPHONES



SF1 Active Directional Antenna

User Manual

English

Preface

Thank you for using this product. In order to use this product better and safer, please read the user manual carefully.

Scope Of Application

This user guide is intended for the Aputure SF1 Active Directional Antenna, developed by Shenzhen Aputure Innovation Technology Co., Ltd. (hereinafter referred to as Aputure). It describes the appearance, features, technical specifications, and precautions of the product.

The SF1 is an active directional antenna designed to enhance broadband UHF wireless system signal reception. It covers a frequency range of 470MHz to 960MHz and offers excellent reception performance. The antenna provides an active gain range from -9dB to +21dB, effectively compensating for signal loss caused by long-distance coaxial cable transmission and attenuating overly strong input signals to prevent receiver overload. The unit meets the IP54 waterproof rating, making it rugged and durable, suitable for professional wireless audio applications such as theatrical performances and film production.

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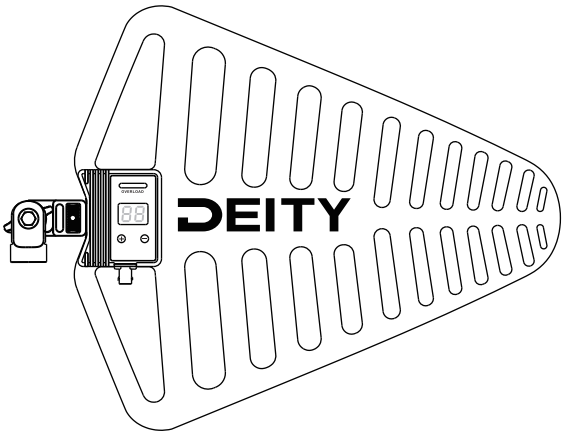
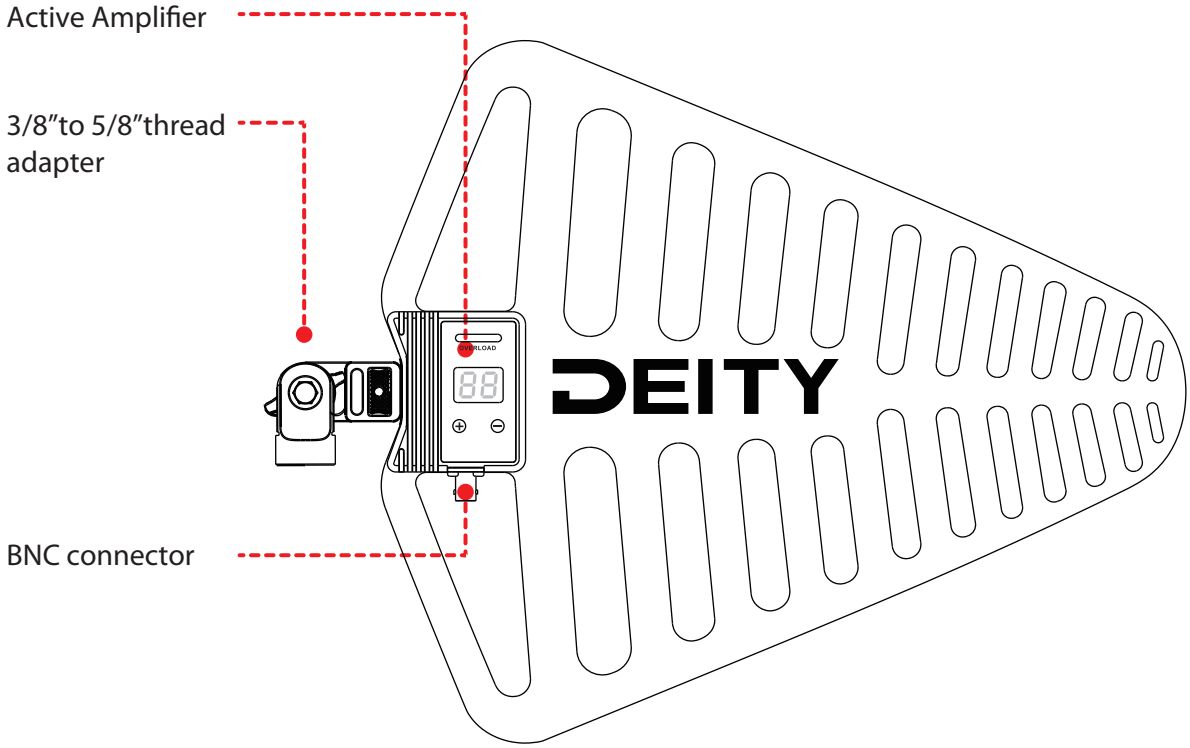


SF1 ×1 (with mounting base)

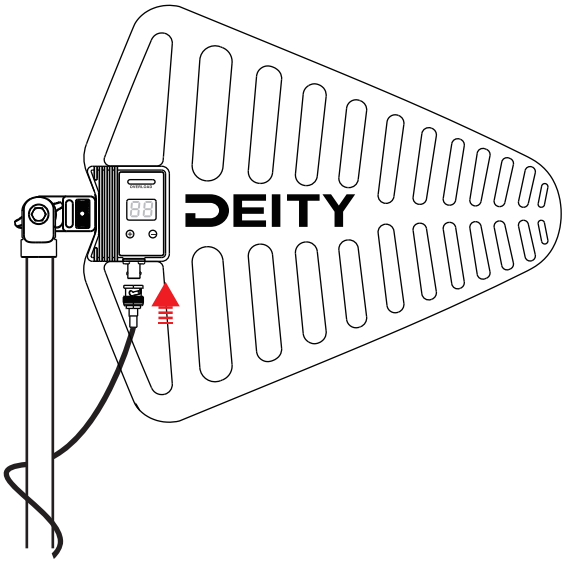
SF1 pouch ×1

Introduction



** Tips: The illustrations in the manual are only diagrams for reference. Due to the continuous development of new versions of the product, if there are any differences between the product and the user manual diagrams, please refer to the product itself.*

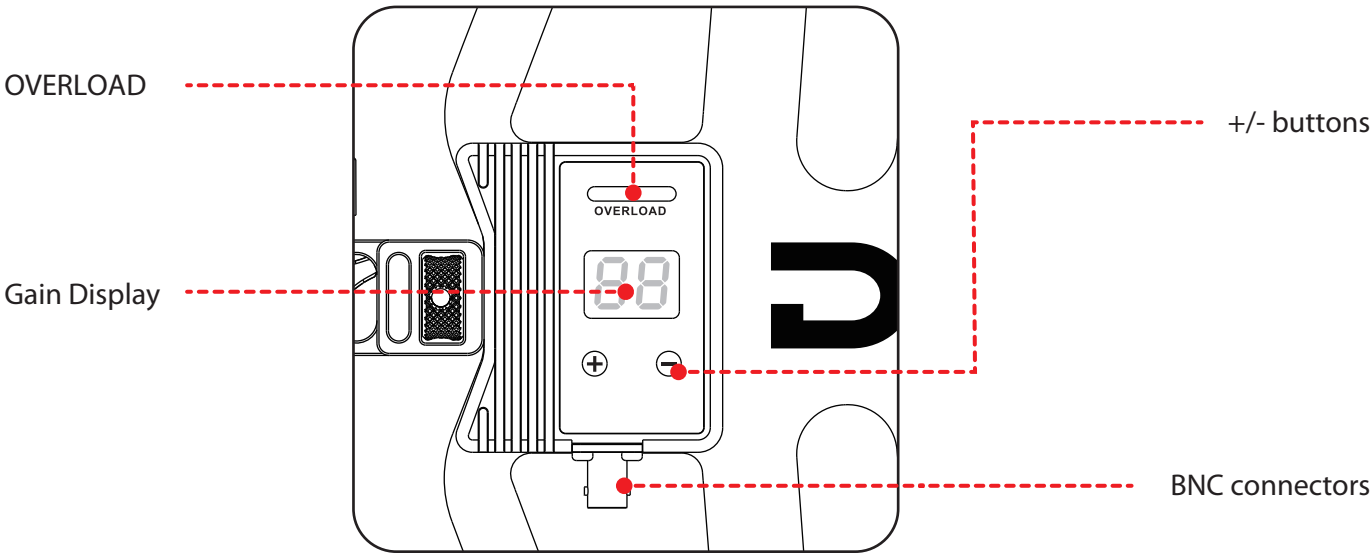
Installation guide



- Use the DEITY BNC antenna cable (or any 50-ohm low-loss coaxial cable) to connect the antenna to a receiver or antenna distribution system.
- This antenna must be used only with receivers or distribution systems that supply a 12–16.8 V DC bias.
- For shorter cables, reduce the gain setting; for longer cables, increase the gain accordingly. Note that signal loss is affected not only by cable length but also by cable quality. A poorly made 15-meter cable may require more gain than a 30-meter high-quality low-loss cable.

  【Refer to the appendix table for gain settings, or consult the cable manufacturer to determine signal loss specifications before setting gain.】
- The SF1 comes with a mounting base and can be directly screwed onto various 3/8″ and 5/8″ threaded mounts. For other thread sizes, please use appropriate adapters.
- Aim the antenna toward the desired coverage area.

Active amplifier configuration



1. Overload : When the signal is overloaded, the indicator lights up red. It is recommended to reduce the gain in this case.

2. Gain Display: A digital display shows the currently set gain value.

3. +/- Buttons: Gain adjustment buttons with 1dB increments, adjustable range from -9dB to +21dB.

4.BNC Connector: Female BNC port. When connected to a receiver or distribution system that supplies 12–16.8V DC bias, the antenna operates in active mode. When connected to a system without DC power, it functions as a passive antenna, providing 6dB gain from the antenna panel in passive mode.

** Note: The gain setting of the active amplifier is intended solely to compensate for the calculated signal loss in the cable. Additional signal gain does not imply better RF performance. Excessive gain may amplify all signals within the RF range, including interference and ambient RF noise.*

Antenna Placement Recommendations

- The antenna and receiver must operate within the same frequency band (470MHz–960MHz).
- Install antennas at least one wavelength apart (a minimum distance of 1 meter is recommended).
- Position antennas so that there is a clear line of sight to the transmitters (including the audience).

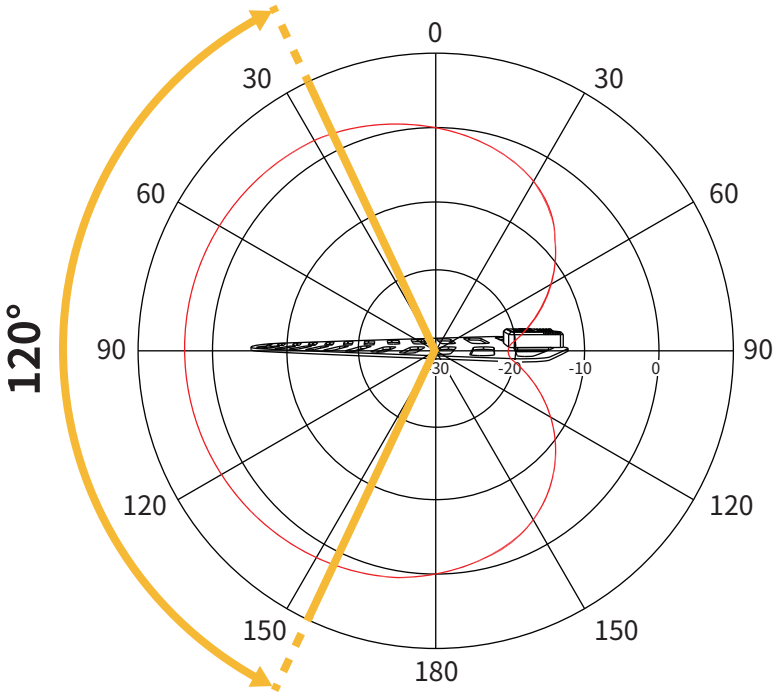
Mount antennas at a height and keep them away from metal objects.

** Important Note: Before using the wireless system during a speech or performance, always perform a "walk-around" test to verify coverage. Experiment with antenna placement to find the optimal position. If necessary, mark any "low signal areas" and instruct the presenter or performer to avoid these zones.*

SF1 Specifications And Parameters

RF Freq Ranges	470MHz-960MHz
Input Impedance	50Ω
Active Gain	-9dB to +21dB (step 1dB)
Passive Gain	Typ.6dBi
OIP3	39dBm
Pickup Pattern	Directional
Pickup Angle	60°(Optimal Usage Angle Range)
Polarization	Linear
RF input power	30mW (max)
Power Requirements	DC 12 –16.8 V
Power Consumption	12V/90mA (max)
Waterproof Rating	IP54
Operating Temperature	-10℃ to +55℃
Storage Temperature	-20℃ to +70℃
Operating Humidity	5% to 95%
Physical	
Dimensions(LxW)	376.5 x 328.8mm
Weight	532g
Connector	BNC
Install	3/8'' to 5/8” threaded mounts

Polarity diagram



The above data are all measured by Aputure Audio Lab, which is subject to the physical data!

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Appendix 1: Typical Attenuation of Coaxial Cables

Typical Attenuation of Coaxial Cables (30 meters / 100 feet)			
Cable Type	Diameter mm (in)	Attenuation @400MHz	Attenuation @900MHz
RG 58 C/U	4.95(1.9)	9.6dB	10.4dB
RG 213 /U	10.3(4)	3.9dB	6.6dB
RG 218 /U	22.1（8.6）	2.1dB	4.2dB
cellflex-1/4" foam	8.8（3.4）	2.5dB	3.9dB

Attenuation of DEITY BNC Coaxial Cable (5 meters)						
Frequency	470MHz	500MHz	600MHz	700MHz	800MHz	960MHz
Attenuation	2.1dB	2.2dB	2.5dB	2.7dB	3.0dB	3.3dB
Gain Setting Recommendations	2	2	3	3	3	3
Note: Please adjust the gain settings appropriately according to the on-site environment and other influencing factors.						

Important Hint

- Please read this product manual carefully.
- Keep this product manual. Always include this product manual when passing the products on to third parties.
- Heed all warnings and follow all instructions in this product manual.

Warning: Do not place the product near any corrosive chemicals. Corrosion may cause the product to malfunction.

- Only use a microfiber or dry cloth to clean the product.
- Operate carefully - dropping or hitting the product may cause damage.
- Store the product in a dry, clean, dust-free environment.
- Please contact authorized maintenance personnel when maintenance is needed. There are precise electronic circuits in this product. Failure caused by unauthorized disassembly is not covered by our warranty, but users can pay for maintenance.
- This product has been certified by CE, EURoHS, UKCA, CNROHS , etc. Please adhere to the operation standards. The warranty does not cover repairs arising out of the misuse of the product,although you may request such repairs on a chargeable basis.
- The instructions and information in this manual are based on thorough, controlled company testing procedures. Further notice will not be given if the design and specifications change.
- DEITY AA batteries are disposable lithium iron non-rechargeable batteries, please do not charge them.

Disclaimer

Before using this product, please read the product manual to ensure correct use under the complete understanding. After reading, please keep the product manual properly for future reference. In case of not operating this product correctly, it may seriously harm yourself or others, or result in product damage and property loss. When using this product, it shall be deemed that you have understood, recognized and accepted all clauses and contents of this document. The user commits to be responsible for their own behaviors and all consequences thereof. DEITY shall not be liable for any loss due to the user who does not use this product in accordance with the product manual.

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Please visit the official DEITY website for the latest product information.