

**QK-AS15****Coaxial Lightning Surge Protector****for VHF / AIS and****3G / 4G / WiFi Antennas**

Designed in UK

**Features**

- Designed to protect VHF / AIS / 3G / 4G/ WiFi devices from lightning and other induced transients on the boat.
- The coaxial construction assures excellent high frequency characteristics, wide bandwidth, low insert loss and VSWR.
- Heavy duty design and water resistant (IP65)
- SO239 Male to SO239 Female connectors

**Contents**

Contents ..... 2

1. Introduction ..... 2

2. Connections and Installation..... 3

    2.1. Wiring..... 3

    2.2. Grounding ..... 3

3. Specifications ..... 3

4. Limited Warranty and Disclaimer ..... 4

**1. Introduction**

When the lightning strikes the mast of a ship, lightning current travels to the deck. Any cables mounted on the mast (e.g., the VHF/AIS/4G antennas or navigation lights cables) could be the route for the lightning current to enter and spread over the entire cabling of the on-board system. This can cause damage to some of the marine navigation devices, or it can damage the whole system

The QK-AS15 is designed to ground the surge of lightning strikes on VHF/AIS/4G antennas. It reduces the voltage spikes and shunt the voltage to the ground through the ground cable, thus protecting the VHF radio and AIS transponders or 4G router. The coaxial construction of the AS15 assures excellent high frequency characteristics, wide-band, and low loss and VSWR. The built-in gas-charging surge arrester element ensures a fast response time and good functioning even after multiple lightning strikes. A ground lug and the terminals on the lightning protector housing ensure easy installation.

The AS15 is only aimed to protect the device connected to it. Please seek the help of a professional electrical engineer to assess the lightning risk of your vessel. Lightning current distribution path normally needs to be estimated.

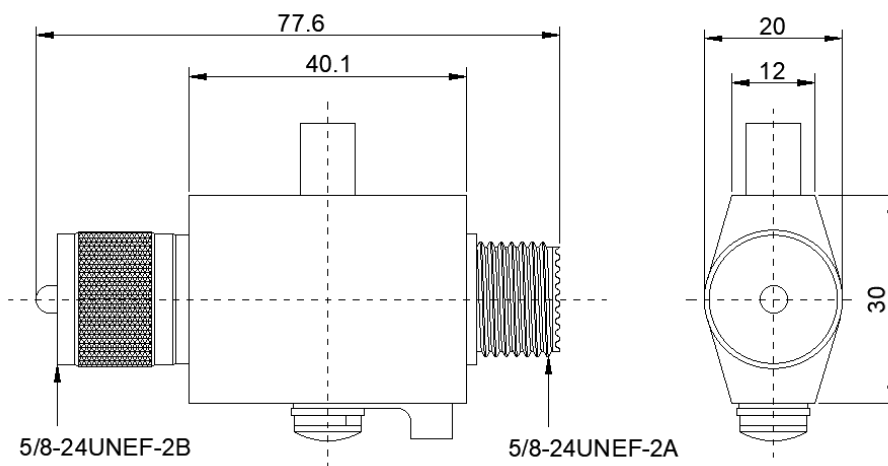


Figure 1 Dimensions of the AS15

## 2. Connections and Installation

Installing the AS15 is a simple with only a few steps process.

Both the antennas and the AS15 have impedance ratings, either 50 Ohms or 75 Ohms. The AS15 impedance rating must match that of the antenna for optimal results. Most marine VHF/AIS antennas have the impedance of 50 Ohms, but please check before installation.

### 2.1. Wiring

1. The AS015 is suggested to be installed inside of the boat, in a dry and clean space, keeping it away from combustible material. Although it can be connected directly to the VHF radio / AIS receiver or WiFi router, we would suggest having a 2-foot coaxial cable between the RF device and the AS15. This would save the RF device in case of the over voltage/current of lightning would damage the AS15.
2. Connect one end of the AS15 to the 2-foot cable or to the RF device. Either end will work since the AS15 is bi-directional.
3. Connect the other end of the AS015 to the coaxial cable that connects to the antenna.

### 2.2. Grounding

Grounding the AS15 is extremely important, otherwise it won't function as intended. If the external antenna is shocked by high voltage energy, this will help earth ground the energy.

Attach the ground wire to the grounding connector and use a set of pliers to crimp the wire on the connector firmly. The other end of the wire needs to be attached to a grounding point. When installing the wire, avoid creating any sharp bends. It is recommended to use a copper wire no smaller than 10 AWG (>2.5mm diameter) and keep this lightning escape wire as short as possible.

## 3. Specifications

Item	Specification
Frequency range	DC to 2500 MHz
Impedance	50 Ohm
VSWR	< 1.1
Insert loss	< 0.2 dB
Input power	400W
Voltage at discharge start	DC 350V ±20%
Discharge voltage of shock wave (1x40)µ S	1000 V
Withstand current of shock wave (1x40)µ S	6000 A
Insulating resistance (DC 100V)	> 5,000MΩ
Connector	SO239/SO239
Housing	Brass, tri-metal plated
Centre contact:	Brass / bronze, gold plated
Temperature Range:	-25°C to 80°C

### For more information

For technical support and other enquiries, please go to the Quark-elec forum at <https://www.quark-elec.com/forum/> or email [info@quark-elec.com](mailto:info@quark-elec.com)

## 4. Limited Warranty and Disclaimer

Quark-elec warrants this product to be free from defects in materials and manufacture for two years from the date of purchase. Quark-elec will, at its sole discretion, repair or replace any components that fail in normal use. Such repairs or replacement will be made at no charge to the customer for parts and labour. The customer is, however, responsible for any transportation costs incurred in returning the unit to Quark-Elec. This warranty does not cover failures due to abuse, misuse, accident or unauthorized alteration or repairs. A returns number must be given before any unit is sent back for repair.

The above does not affect the statutory rights of the consumer.

This product is designed to aid navigation and should be used to augment normal navigational procedures and practices. It is the user's responsibility to use this product prudently. Neither Quark-, nor their distributors or dealers accept responsibility or liability either to the products user or their estate for any accident, loss, injury or damage whatsoever arising out of the use or of liability to use this product. Quark- products may be upgraded from time to time and future versions may therefore not correspond exactly with this manual. The manufacturer of this product disclaims any liability for consequences arising from omissions or inaccuracies in this manual and any other documentation provided with this product.

## Document history

Issue	Date	Changes / Comments
1.0	09-04-2022	Initial release

**Quark-elec (UK)**  
Unit 7, the Quadrant  
Newark close  
Royston, UK  
SG8 5HL

