EFHW-728A100
End-Fed Half-Wave
40/20/15/10m Antenna

Thank you for purchasing the EFHW-728A100 End-Fed Half-Wave (EFHW) Antenna from DBK Products.

These antennas are small, efficient, easy to deploy & use, high-performance End-Fed Half Wave multi-band HF antennas. Very easy and quick to deploy.

- **No antenna tuner is needed** on specified transmit bands. Typical SWR <1.5:1. See typical SWR response plot on page 3.
- Needs no counterpoise and in most cases no ground is required.
- Much more discrete (stealth) compared to center-fed antennas.
- Small and lightweight enough for QRP/Portable use but can also be used in permanent installations.
- Model EFHW-728-100 Can handle up to 100-125w transmit power ICAS

*This power rating is applicable on naturally resonant frequencies of the antenna, i.e. 40/20/15/10m when used along with ~65ft. of antenna wire and where low SWR is achieved without use of an antenna tuner.

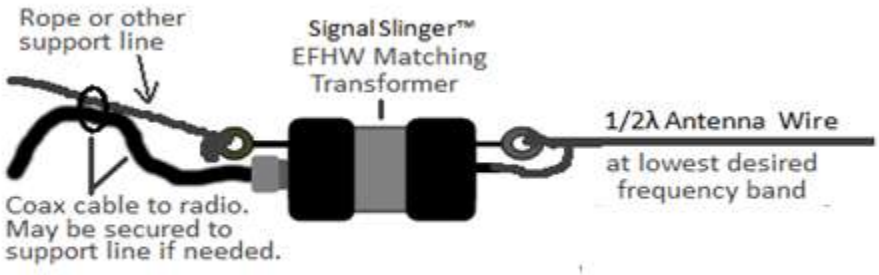
NOTE: Please read and follow all applicable safety information and procedures on page 5.

For questions, please feel free to visit us on the web at http://www.dbkproducts.com and use the contact form there or email at support@dbkproducts.com

Mounting & Deployment Options

The Signal Slinger matching transformer has been carefully designed to support deployment in a variety of ways. See the following illustrations for general ideas.

1) Directly supported by the antenna as an integral part, shown here:



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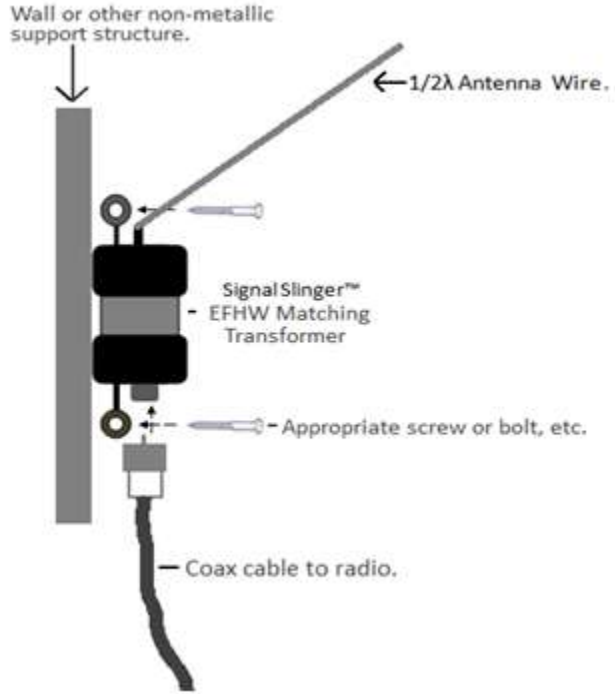
2) Mounted to a wall or other non-metallic support structure as shown below. Orient transformer so as to place eye bolt openings in parallel with and closest to mounting surface. Use screws or bolts etc. inserted through eye bolt openings to securely mount transformer. Do not tighten screws/bolts any more than necessary for a secure mount. Over tightening may damage the transformer housing.



Some information about End-Fed Half Wave (EFHW) antennas

As the name indicates, the EFHW antenna is one half of a wavelength long on the lowest desired band of operation.

The End Fed Half Wave (EFHW) antenna is a very good option for many radio users – Amateur Radio, SWL, EMCOMM, etc.

It is able to provide resonant operation on multiple bands both transmit & receive without use of an antenna tuner while using a minimum of space. This makes it attractive to those who live in HOA restricted areas such as apartments and condos, and others who want need low visual impact.

The EFHW antenna is also a very good option for portable and temporary field use because it is very easy to deploy and remove, requires very little or no ground system, and does not require the use of an antenna tuner on resonant bands.

Because the EFHW antenna uses only a single wire, it is very easy to set up in a variety of configurations. It can be set up horizontal, sloped, L or inverted L, inverted vee, etc.

The EFHW antenna uses a broad-band matching network which transforms the high impedance (usually 2000-5000Ω) of the end-fed antenna wire down to the 50Ω impedance which is needed for most modern transmitters & receivers.

Tuning range of the EFHW antenna is determined by wire length of the radiator. Wire length is usually chosen to be approx. 1/2 wavelength at the lowest desired operating frequency. The antenna will then be naturally resonant on the chosen band, and will also be resonant on odd & even harmonics of the fundamental frequency or chosen band, allowing for multi band operation without the need for an antenna tuner.

Recommended antenna wire types & lengths for common Amateur Radio bands

Type of wire is not critical, and will depend on the installation needs. Generally, 14 to 16-guage solid or stranded copper wire will work well and is rugged. For installations which require a hidden or "stealth" type of antenna such as HOA restrictions, wire sizes and/or colors can be chosen so as to disguise or camouflage the antenna as much as possible.

For use with the EFHW-328 series of transformers, a wire length of ~65ft.(20m) is recommended. This allows resonant operation on the 40/20/15/10m amateur bands. See typical SWR plot on following pages.

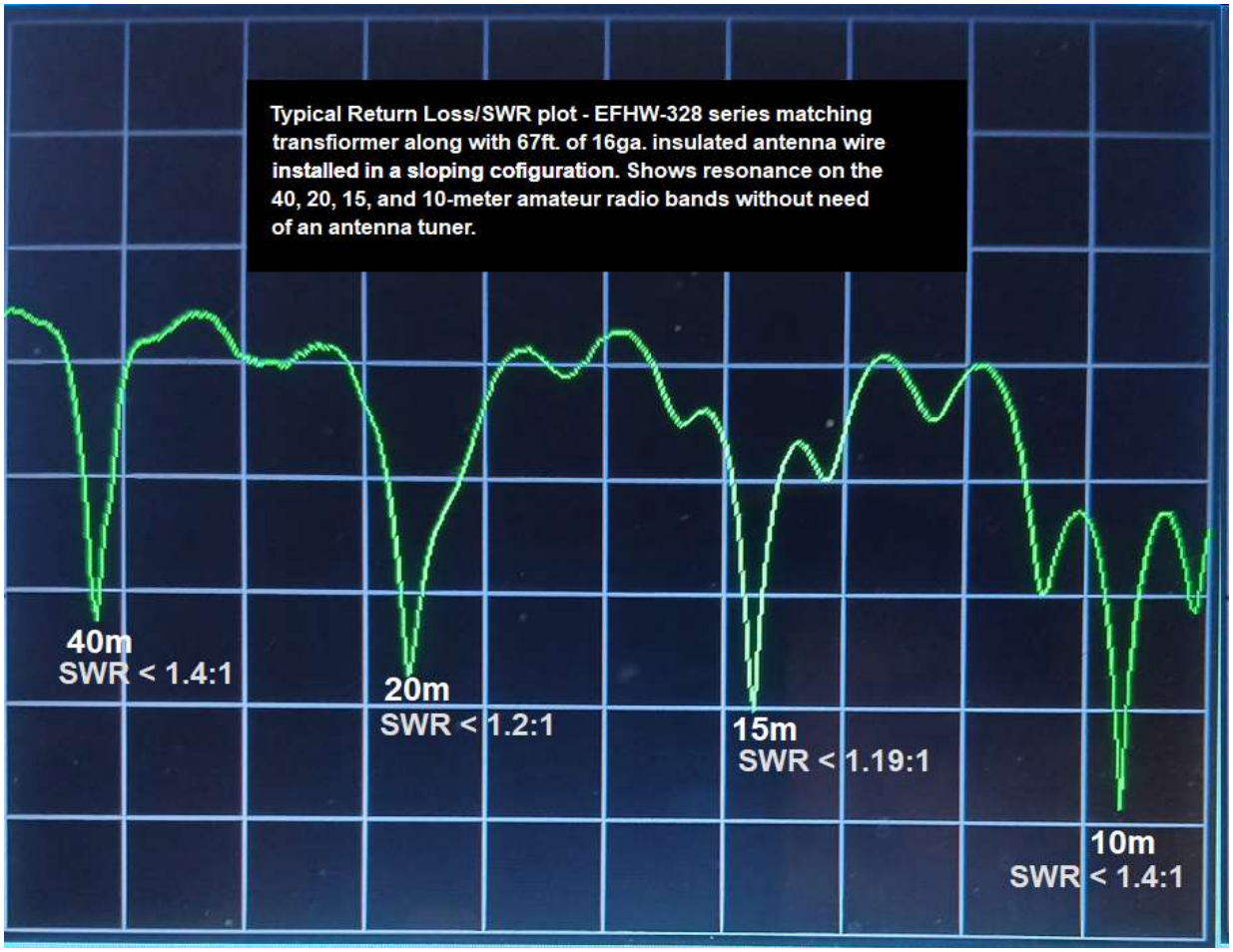
The formula for choosing the correct wire length is as follows:

Length in **feet** = 463/*f*(mhz), where *f* = desired lowest operating frequency.
Length in **metres** = 141/*f*(mhz), where *f* = desired lowest operating frequency.

Therefore:

For operation on the **40-20-15-10m** amateur bands: Antenna wire length **= approx. 65ft.(20m)**
WARC bands can also be covered with use of an antenna tuner. Built-in tuners in most transceivers will work well. Wire length can also be calculated & chosen for a single band if desired.

NOTE: As with most all antennas, proximity to other objects – especially metal – may affect resonance and/or performance of the antenna. Experimentation with placement might be needed under some installation circumstances. Also, wire lengths may need to be lengthened or shortened slightly in order to achieve resonance.



SAFETY INFORMATION

WARNING: INSTALLATION OF THIS PRODUCT NEAR POWER LINES IS DANGEROUS! FOR YOUR SAFETY, FOLLOW THE PROVIDED INSTALLATION INSTRUCTIONS. INSTALLER ASSUMES ALL LIABILITY FOR PROPERTY AND LIFE SAFETY.

WARNING: HIGH VOLTAGES MAY BE PRESENT ON THE ANTENNA ELEMENT AND ASSOCIATED CONNECTORS DURING TRANSMITTER OPERATION**. DO NOT TOUCH ANY PART OF THE ANTENNA ELEMENT OR CONNECTORS WHILE TRANSMITTING!**

EXCESS RF EXPOSURE WARNING

In the United States, the Federal Communications Commission has established guidelines for human exposure to Radio Frequency (RF) electromagnetic fields. The commission's requirements are detailed in parts 1 & 2 of the FCC's rules and regulations [47 CFR, 1.1307(b), 1.1310, 2.1091, 2.1093]. It is the responsibility of the owner/operator of this device to follow all applicable warnings and precautions regarding human exposure to RF fields.

The FCC Office of Engineering Technology (OET) Bulletin 65, Supplement B, Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields may directly concern the use and operation of the model EFHW-728 series of antenna products. This bulletin establishes safe operating distances from the loop antenna and associated power levels in order to permit the operator and persons who may be impacted by operation to exist in a safe environment. Guidelines for Maximum Permissible Exposure or MPE are defined in Supplement B of the bulletin.

IMPORTANT NOTE:

Refer to the above mentioned Supplement B along with FCC OET Bulletin 65, Version 97-01. The information in the supplement provides additional details which are used for evaluating compliance of amateur radio stations with FCC guidelines for exposure to radio frequency electromagnetic fields. However, Supplement B users should also consult Bulletin 65 for complete information on FCC policies, guidelines and compliance-related issues. Definitions of terms used in this supplement appear in Bulletin 65. Bulletin 65 can be viewed and downloaded from the FCC's Office of Engineering and Technology's World Wide Web Internet Site: http://www.fcc.gov/oet/rfsafety

WARRANTY INFORMATION

LIMITED PRODUCT WARRANTY

DBK Products warrants its products to be free from defects in material and workmanship for a period of ninety (90) days from date of shipment. Any product found to be defective within this time period may be returned to our factory, freight prepaid, with prior return authorization for repair or replacement (at our discretion) at no charge (with the exception of batteries and other expendable items). Our liability under this warranty is limited to the repair or replacement of the defective product and in no event shall DBK Products be liable for consequential or indirect damages to goods, property, equipment or personnel. Nor shall we be liable for damages to equipment or for personal injury caused by misuse, overload, accidental damage, alteration, improper installation, or unauthorized opening of the equipment. Under no circumstances will we be responsible for any indirect or consequential damages due to errors in or failure of our product to perform properly.

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