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Revision Record
MANUAL, 3142E | Part # 399337 Rev C

<table>
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<th>Revision</th>
<th>Description</th>
<th>Date</th>
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<tr>
<td>A</td>
<td>Initial Release</td>
<td>July, 2012</td>
</tr>
<tr>
<td>B</td>
<td>Updated frequency range; updated boom options</td>
<td>February, 2015</td>
</tr>
<tr>
<td>C</td>
<td>Updated manual format and added typical data for cross polarization</td>
<td>February, 2021</td>
</tr>
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## NOTES, CAUTIONS AND WARNINGS

### Note:
Denotes helpful information intended to provide tips for better use of the product.

### Caution:
**CAUTION:** Denotes a hazard. Failure to follow instructions could result in minor personal injury and/or property damage. Included text gives proper procedures.

### Warning:
**WARNING:** Denotes a hazard. Failure to follow instructions could result in **SEVERE** personal injury and/or property damage. Included text gives proper procedures.

*All notes, cautions, and warnings will be located on the left column area of the page.*

See the ETS-Lindgren **Product Information Bulletin** for safety, regulatory, and other product marking information.
INTRODUCTION

The ETS-Lindgren Model 3142E BiConiLog™ Antenna is designed as a dual-purpose antenna that can be used for both immunity and emission testing. From 30 MHz to 6 GHz, the Model 3142E exhibits an average 5.5 dB gain. Applications for the Model 3142E include emissions testing, immunity measurements, and medical equipment testing.

The Model 3142E Antenna includes a stinger mount; it also includes a mounting bracket and a 1/4–20 thread knob to attach to an ETS-Lindgren tripod or tower adapter.

For the variety of mounting options available for the Model 3142E, see Mounting instructions.
Tripod Options

ETS-Lindgren offers the following non-metallic, non-reflective tripods for use at both indoor and outdoor EMC test sites.

- 4-TR Tripod—Constructed of linen phenolic and delrin, designed with an adjustable center post for precise height adjustments. Maximum height is 2.0 m (80.0 in), and minimum height is 94 cm (37.0 in). This tripod can support up to an 11.8 kg (26.0 lb) load.

- 7-TR Tripod—Constructed of PVC and fiberglass components, providing increased stability for physically large antennas. The unique design allows for quick assembly, disassembly, and convenient storage. Allows several different configurations, including options for manual or pneumatic polarization. Quick height adjustment and locking wheels provide ease of use during testing. Maximum height is 2.17 m (85.8 in), with a minimum height of 0.8 m (31.8 in). This tripod can support a 13.5 kg (30 lb) load.

Note:
For easy horizontal and vertical polarization, the ETS-Lindgren Model 7-TR tripod is recommended.

ETS-Lindgren Product Information Bulletin

See the ETS-Lindgren Product Information Bulletin included with your shipment for the following:

- Safety, regulatory, and other product marking information
- Steps to receive your shipment
- Steps to return a component for service
- ETS-Lindgren calibration service
- ETS-Lindgren contact information
Before performing any maintenance, follow the safety information in the ETS-Lindgren Product Information Bulletin included with your shipment.

Maintenance of the Model 3142E is limited to external components such as cables or connectors.

If you have any questions concerning maintenance, contact ETS-Lindgren Customer Service.

Note:
ETS-Lindgren may substitute a similar part or new part number with the same functionality for another part/part number. Contact ETS-Lindgren for questions about part numbers and ordering parts.

For additional/optional mounting hardware, see Additional Mounting Options.

**CAUTION**

Maintenance of the Model 3142E is limited to external components such as cables or connectors.

**WARNING**

If you have any questions concerning maintenance, contact ETS-Lindgren Customer Service.

---

**MAINTENANCE**

**Replacement and Optional Parts**

The following are the part numbers for ordering replacement or optional parts for the Model 3142E.

<table>
<thead>
<tr>
<th>Part Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polarizing Mounting Adapter</td>
<td>100989</td>
</tr>
<tr>
<td>Thread Insert</td>
<td>105861</td>
</tr>
</tbody>
</table>

**Service Procedures**

**Contacting ETS-Lindgren**

Please see www.ets-lindgren.com for a list of ETS-Lindgren offices, including phone and email contact information.

**Sending a Component for Service**

For the steps to return a system or system component to ETS-Lindgren for service, see the Product Information Bulletin included with your shipment.

**Calibration Services and Annual Calibration**

See the Product Information Bulletin included with your shipment for information on ETS-Lindgren calibration services.
## Electrical Specifications

<table>
<thead>
<tr>
<th>Frequency Range</th>
<th>Continuous</th>
<th>Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 MHz-60 MHz</td>
<td>500 W</td>
<td>800 W</td>
</tr>
<tr>
<td>60 MHz-600 MHz</td>
<td>1 kW</td>
<td>1.5 kW</td>
</tr>
<tr>
<td>600 MHz-1 GHz</td>
<td>500 W</td>
<td>800 W</td>
</tr>
<tr>
<td>1 GHz-6 GHz</td>
<td>200 W</td>
<td>300 W</td>
</tr>
</tbody>
</table>

- **Peak Power:** 1.3 kW
- **Pattern Type:** Directional
- **Polarization:** Linear
- **Connector:** Type N female

## Physical Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height (Overall)</td>
<td>76.2 cm (30 in)</td>
</tr>
<tr>
<td>Length</td>
<td>139.16 cm (54.79 in)</td>
</tr>
<tr>
<td>Width</td>
<td>133.75 cm (52.66 in)</td>
</tr>
<tr>
<td>Weight</td>
<td>5.7 kg (12.5 lb)</td>
</tr>
</tbody>
</table>
Before connecting any components, follow the safety information in the ETS-Lindgren Product Information Bulletin included with your shipment.

**CAUTION**

Photos of bowtie elements used in this section may differ from the bowtie elements for your Model 3142E; the assembly procedure is the same for both.

---

**ASSEMBLY**

The Model 3142E BiConiLog™ Antenna is comprised of the following parts:

- Antenna
- Bowtie elements (2)
- 10–32 thumbscrew knobs to attach bowtie elements (2)
- Mounting bracket and mounting knob

**Attach Bowtie Elements**

The Model 3142E ships with the bowtie elements detached. To attach the bowtie elements:

1. Locate the bowtie elements.
2. Insert each thumbscrew knob (2) into the receptacle hole on the antenna boom.
3. Tighten the thumbscrew knobs securely.

---

**Model 3142E shown in vertical polarization**
1. For stability, mount the Model 3142E onto a tripod or tower. See Mounting Instructions on page 19 for the steps to mount the antenna.

2. Slide the narrow end of one of the bowtie elements into the receptacle hole on the antenna balun, and then align the bowtie with the receptacle on the balun.

3. Insert one of the 10–32 thumbscrew knobs into the opposite side of the balun from where you inserted the bowtie. Slowly tighten the knob, taking care not to cross thread the connection.

4. Repeat steps 2 and 3 for the second bowtie element.
**CAUTION**

Before connecting any components, follow the safety information in the ETS-Lindgren Product Information Bulletin included with your shipment.

The Model 3142E antenna is a precision measurement device. Handle with care.

**Note:**

Photos of bowtie elements used in this section may differ from the bowtie elements for your Model 3142E; the assembly procedure is the same for both.

---

**MOUNTING**

Contact with any metal or non-metallic structure can capacitively load the antenna, which may cause unrepeatable results. Therefore, make sure that no part of the dipole elements or bowties is in contact with the tripod or tower, particularly in vertically-polarized tests. Where possible, run the feed cable straight one meter or more back from the Model 3142E BiConiLog™ Antenna before dropping vertically.

**Using Included Mounting Adapters**

In addition to the attached mounting bracket and mounting knobs, the Model 3142E ships with these mounting adapters:

1. 100989 Polarizing Mounting Adapter with 7/8–14 thread receptacle

   - If you need to convert the polarizing adapter to a 1/4–20 receptacle, insert the 1/4–20 thread insert into the polarizing adapter

2. 105861 1/4–20 Thread Insert
To attach the included adapters to the Model 3142E:

1. If required, insert the 1/4–20 thread insert into the mounting adapter.
2. Remove the mounting knob from the mounting bracket on the antenna.
3. Slide the mounting bracket onto the mounting adapter with the adapter placed between the shoulders of the mounting bracket.
4. Thread the mounting knob through the mounting bracket, then through the mounting adapter, and finally through the hex nut.
5. Tighten the mounting knob to secure the antenna.
6. Attach the mounting adapter and antenna to tripod or tower, as required.

Using the Stinger to Mount to a Model 2175 MiniMast

The stinger mount provides on-axis rotation during 90° horizontal or vertical polarization. The stinger enables you to mount the antenna directly to an ETS-Lindgren 7-TR Tripod or mast.

Before you begin –

- Install the center rotate boom (part# 108507) for rear-mount stinger-type antennas.
- Attach the included mounting adapter to the Model 3142E as instructed in Using Included Mounting Adapters on page 20.
- You will need one of the optional mounting knobs described in 7-TR and Mast Mounting Options on page 26. To order optional mounting hardware, contact the ETS-Lindgren Sales Department.

Note:

Do not cross thread or permanent damage to the adapter and thread insert could occur.

CAUTION

Do not use the stinger to mount the Model 3142E onto a 4-TR tripod.
Before connecting any components, follow the safety information in the ETS-Lindgren Product Information Bulletin included with your shipment.

The Model 3142E antenna is a precision measurement device. Handle with care.

**CAUTION**

Before connecting any components, follow the safety information in the ETS-Lindgren Product Information Bulletin included with your shipment.

The Model 3142E antenna is a precision measurement device. Handle with care.

**Note:**

Photos of bowtie elements used in this section may differ from the bowtie elements for your Model 3142E; the assembly procedure is the same for both.

1. Thread the antenna feed or receiving cable through the center of the boom so that the antenna connector emerges a few inches out of the clamp end of the boom.

2. Attach the cable to the Type N connector at the end of the stinger.

3. Slide the cable and stinger into the clamp on the boom, carefully guiding the cable out the other end.

4. When you reach the back of the balun box, align it with the boom receptacle, and then slide the smaller portion of the balun box into the boom. This will prevent rotation of the antenna unless the boom is being polarized.
5. Tighten the clamp knobs on the boom to secure the antenna into place.

**Additional Mounting Options**

**4-TR Mounting Options**

Following are additional options for mounting the Model 3142E onto an ETS-Lindgren 4-TR tripod. Contact the ETS-Lindgren Sales Department for information on ordering optional mounting hardware.
7-TR and Mast Mounting Options

The stinger on the Model 3142E enables you to mount to antenna directly to an ETS-Lindgren 7-TR Tripod Positioner.

However, following are additional options for mounting the Model 3142E onto an ETS-Lindgren 7-TR Tripod Positioner.

Contact the ETS-Lindgren Sales Department for information on ordering optional mounting hardware.

7-TR refers to these booms –
- 109042 boom—Straight boom; for general antenna mounting on a 7-TR
- 108983 boom—Offset boom; for general antenna mounting on a 7-TR with pneumatic or manual polarization; can also be used to mount stinger-type antennas
- 118947 – for stinger-type antennas only

Note:
Mast refers to 2070 Series, 2075, and 2175 Antenna Towers.
2X2 Boom Mounting Options

Following are additional options for mounting the Model 3142E onto a 2x2 boom. Contact the ETS-Lindgren Sales Department for information on ordering optional mounting hardware.

Note: 2x2 boom refers to a typical 2-inch by 2-inch boom.
TYPICAL DATA

Typical Antenna Factor and Gain

Distance for the ANSI 3-meter and 10-meter calibrations is measured from the antenna midpoint, and for SAE 1-meter calibrations the distance is measured from the antenna tip. Midpoint is defined as half the distance between the small elements and the bowties, which is about 45 cm from the small end tip.
Typical Radiation Patterns

30MHz-50MHz

70MHz-90MHz
900MHz-1000MHz

3142E antenna patterns

2000MHz-3000MHz

3142E antenna patterns
4000MHz-5000MHz

3142E antenna patterns

6000MHz

3142E antenna patterns
Typical Cross Polarization

![Graph showing 3142E Cross Polarization response vs frequency in dB.](3142E_Cross_Polarization.png)
APPENDIX A: WARRANTY

See the Product Information Bulletin included with your shipment for the complete ETS-Lindgren warranty for your Model 3142E BiConiLog™ Antenna.