Boltek EFM-INV-M / EFM-INV2 / EFM-INV3
Inverting Mounting Kit

Installation Instructions

Introduction

The EFM-INV-M, EFM-INV2, and EFM-INV3 Inverted Mounting Kits will allow you to mount your EFM-100 or EFM-200 Electric Field Mill in the inverted downward-facing configuration. Inverting your field mill will provide you with reduced precipitation noise.

ELECTROCUTION WARNING:
INSTALLATION THIS PRODUCT NEAR POWERLINES IS DANGEROUS.
FOR YOUR SAFETY, FOLLOW THE INSTALLATION DIRECTIONS.

SEE ADDITIONAL WARNINGS ON REVERSE

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FALL WARNING:
DO NOT ATTEMPT INSTALLATION AT HEIGHTS UNLESS YOU ARE EXPERIENCED IN THE SAFE USE OF LADDERS AND FALL ARRESTING EQUIPMENT. IF UNSURE REFER INSTALLATION TO AN EXPERIENCED ANTENNA OR SATELLITE INSTALLER.

LIGHTNING ACTIVITY WARNING:
DO NOT WORK ON THE SYSTEM OR CONNECT OR DISCONNECT CABLES DURING PERIODS OF LIGHTNING ACTIVITY.

Installation and Grounding Warning

Warning Do not locate the sensor near overhead power lines or other electric light or power circuits, or where it can come into contact with such circuits. When installing the sensor, take extreme care not to come into contact with such circuits, as they may cause serious injury or death. For proper installation and grounding of the sensor, please refer to national and local codes (e.g. U.S.:NFPA 70, National Electrical Code, Article 810, in Canada: Canadian Electrical Code, Section 54).

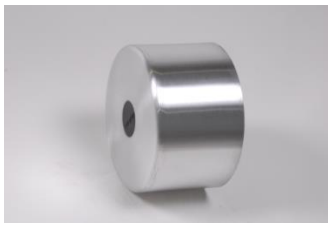
Document Revision History

1.0	*2009*	*Original document*
1.1	*07/31/2011*	*Added instructions to apply silicone grease to threads and washer*

Contents of the Kit

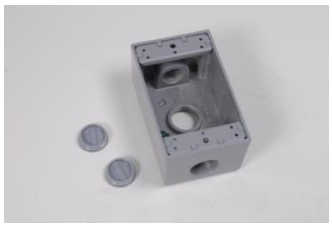
Your EFM-INV-M (Pole mount bracket), EFM-INV2 (2-foot tripod) or EFM-INV3 (3-foot tripod) kit should include the following items:

Inverting Mast



Shroud

Silicone Grease



Junction Box

Junction Box Cover

3/4” NPT Strain Relief

Pole mount bracket (EFM-INV-M) with clamps & bolts

Optional 2' Tripod (EFM-INV2)

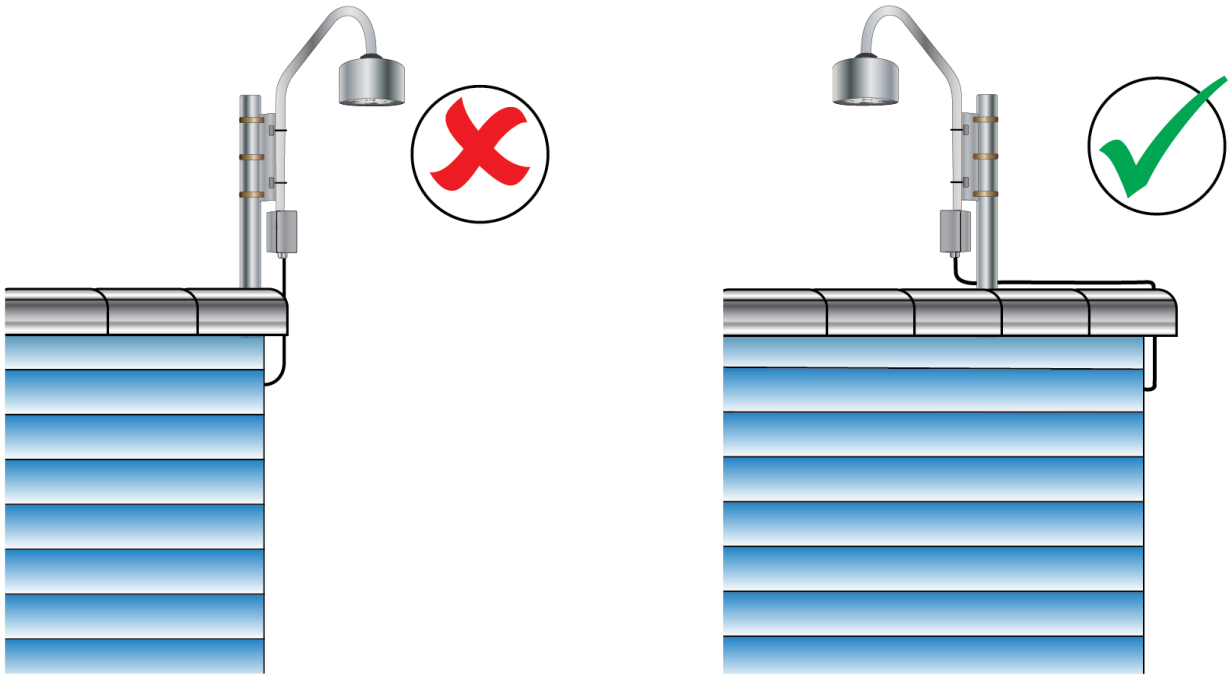
Optional 3' Tripod (EFM-INV3)

Choosing a Mounting Location

Choosing a suitable mounting location is the single most important aspect of a successful installation:

Locate at least 10 feet/3m away from any obstructions and edges of the roof line.

Keep height within 2 to 3 feet between sensor and the ground/roof surface. If installed higher, adjust the sensitivity using one of the supplied attenuator plugs.



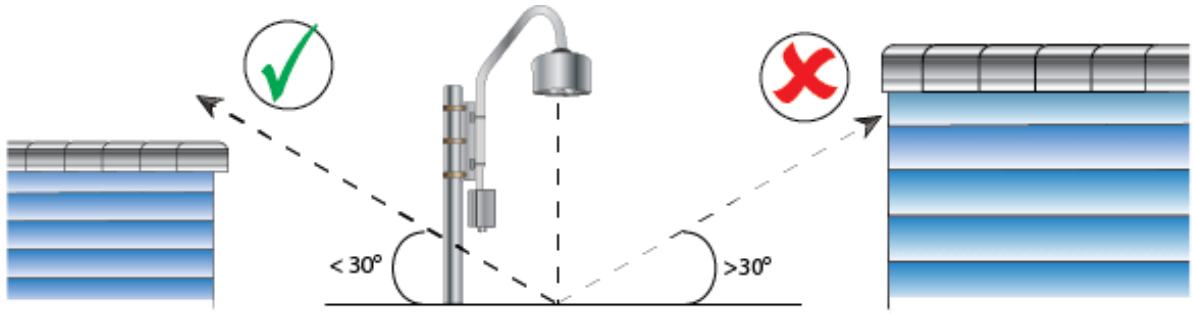
KEEP CLEAR AREA

Persons or animals entering the Keep Clear Area may be detected by the field mill as a High Electric Field or Lightning. If the field mill is mounted at ground level a fence or other barrier should be erected around the field mill. Keep the area directly under the field mill clear of long grass or weeds. Patio slabs or a poured concrete pad is recommended for ground installations.

FIELD OF VIEW

The electric field mill requires a 360 degree view of the sky to detect the static charge on overhead clouds.

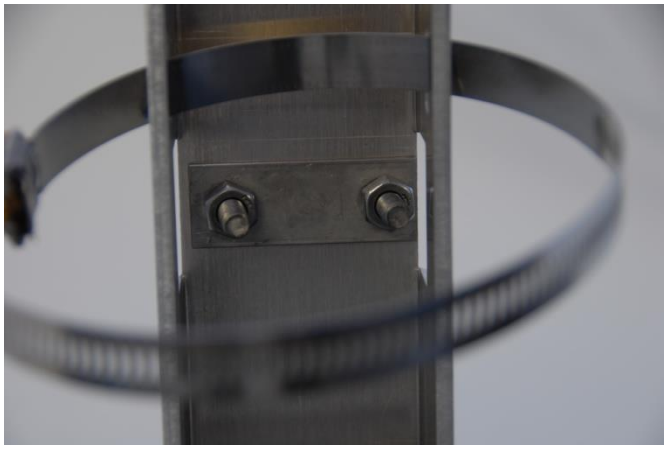
Obstructions within the field mill's field of view may reduce the sensitivity and lightning strike detection, it is also recommended that any large objects or structures are no higher than a 30 degree angle up from the surface directly below the sensor.



Secure the tripod to the roof or patio slabs/concrete pad on the ground. For a no-holes tripod installation on a flat roof the tripod may be secured to patio slabs placed on the roof. Run cables away from the field mill sensor, not directly underneath.

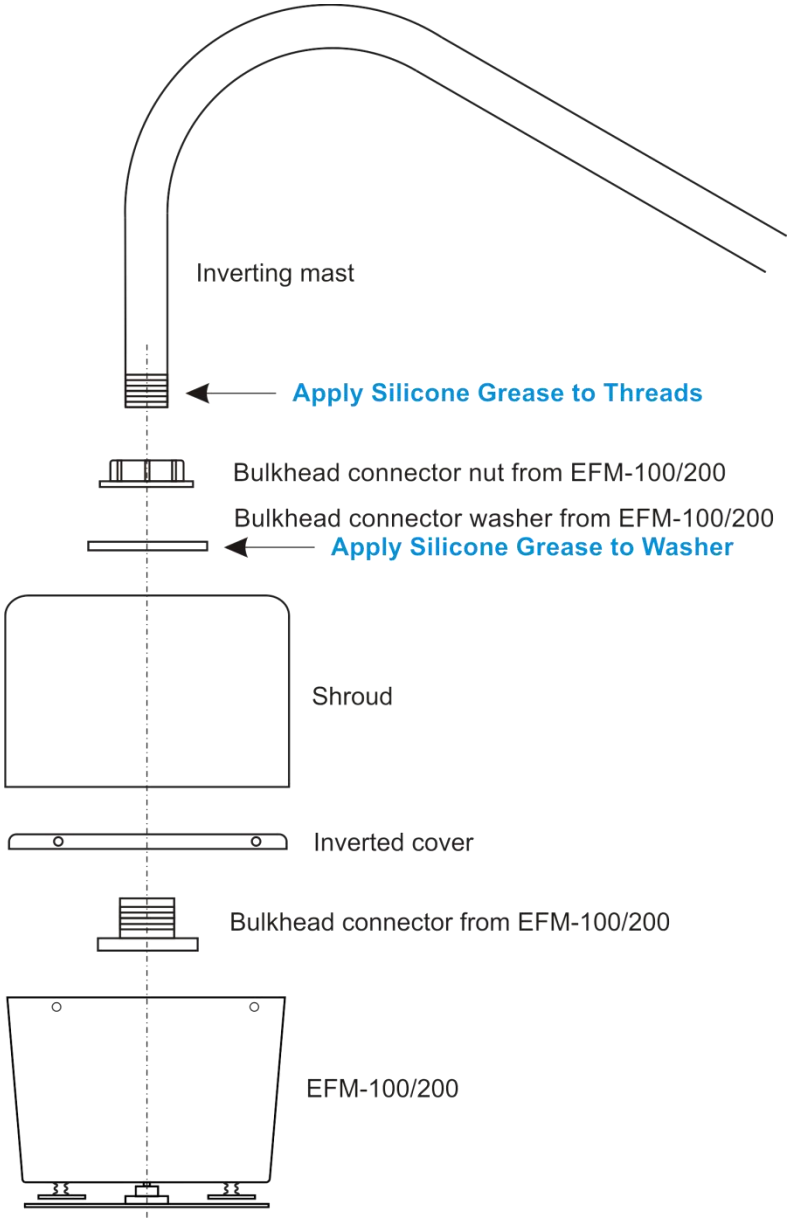
Assembling the pole mount bracket

Remove nuts and washers from the two U-Bolts and place around inverted mast. Secure bolts to bracket as shown below



Open hose clamps, and hold bracket against pole. Place hose clamps through bracket and tighten around pole or tripod mast. Recommended pole size is between 2.5" and 4" outer diameter. If a larger pole is used, bigger hose clamps can be purchased at a local hardware store.

Assembling the hardware



EXPLODED VIEW OF ASSEMBLY

COAT THREADS AND RUBBER WASHER WITH SILICONE GREASE.

RUBBER WASHER MUST BE LOCATED BETWEEN NUT AND SHROUD.

FAILURE TO PROPERLY INSTALL WASHER WILL RESULT IN WATER DAMAGE TO FIELD MILL NOT COVERED BY WARRANTY

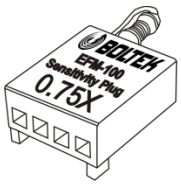
PIPE WRENCH TIGHTENING BULKHEAD ONTO MAST (HAND TIGHT +4 TURNS WITH WRENCH)

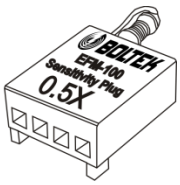
COAT PIPE THREADS WITH SILICONE GREASE.

FAILURE TO PROPERLY TIGHTEN BULKHEAD ONTO MAST WILL RESULT IN WATER DAMAGE TO FIELD MILL NOT COVERED BY WARRANTY

READY FOR THE FIELD MILL TO BE CONNECTED

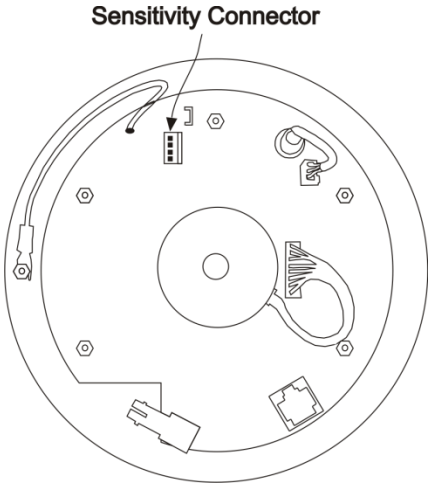
REFER TO THE EFM-100/200 DOCUMENTATION FOR DETAILS ON CONNECTING AND GROUNDING YOUR FIELD MILL





EFM-INV2 USE 0.75X

EFM-INV3 USE 0.5X



INSTALL THE APPROPRIATE SENSITIVITY PLUG BEFORE CONNECTING FIELD MILL

COAT BOTH SIDES OF THE RUBBER WASHER WITH SILICONE GREASE

Connect Power, Ground and Fiber Optic connectors, then screw the Field Mill to its cover. Lower the Shroud over the Field Mill. Lower the greased rubber washer onto Bulkhead Connector, and then the Bulkhead Nut. Tighten the Bulkhead Nut until the Rubber Washer is visibly compressed.

PIPE WRENCH TIGHTENING NUT ONTO RUBBER WASHER
*(**NOTE: LEFT-HANDED COUNTER-CLOCKWISE THREAD ON NUT**)*

DO NOT ALLOW FIELD MILL TO ROTATE OR WIRES CONNECTING FIELD MILL WILL TWIST

COAT BOTH SIDES OF RUBBER WASHER WITH SILICONE GREASE.
FAILURE TO PROPERLY TIGHTEN NUT ONTO RUBBER WASHER AND SHROUD WILL RESULT IN WATER DAMAGE TO FIELD MILL NOT COVERED BY WARRANTY

Remove tightening nut and rubber insert from the strain relief, then screw into the bottom of the junction box. Attach junction box to the bottom of the inverted mast.

Slide the strain relief nut onto the cable, then insert cable into the junction box with a wide loop and insert into connector. Secure the cable with the rubber insert and tighten nut onto strain relief. Screw the cover plate onto the junction box.

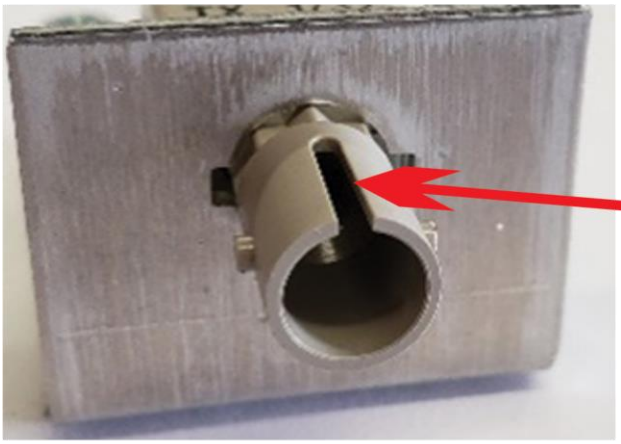
Fiber optic assembly

The following instructions are for installing the fiber optic cable. Orders placed with the fiber optic upgrade will have the transmitter pre-installed. Refer to ***Exploded View of Assembly*** section in this guide for part descriptions.

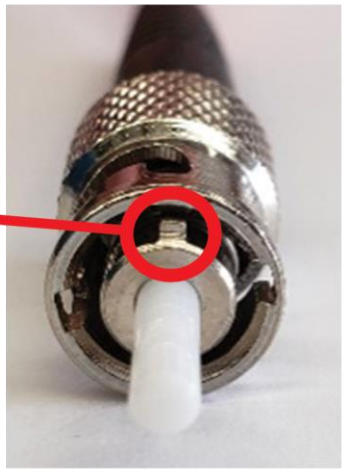
Insert fiber optic cable through the bottom of the junction box, with a large loop.

Carefully line up the key slot and wing tabs and insert cable into connector with a quarter turn to lock into position.

Fiber optic transmitter
shown with key slot facing up



Fiber optic cable connector
shown with key facing up



Fiber cable shown looped and inserted into receiver.

Final assembly options

Pole mount assembly

Assembled on 3' tripod

Assembly with non penetrating roof mount