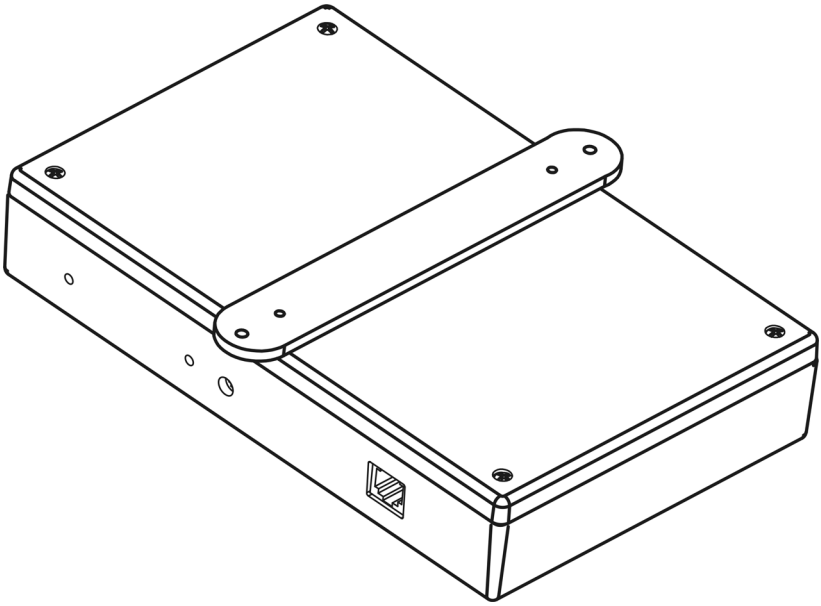
Xmark®
Know for sure

Installation Manual

Transceiver Exciter



Warranty

Xmark's products are warranted against defects in materials and workmanship and shall perform in accordance with published specifications for 1 year.
Xmark's warranty is limited solely to the repair or replacement of the defective part or product. Xmark reserves the right to change product specifications without notice.

Regulatory Statements

United States - Federal Communication Commission (FCC)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
Warning: Any changes or modifications not expressly approved by Xmark could void the user's authority to operate the equipment.

Canada - Industry Canada

The term "IC:" before the certification/registration number only signifies that Industry Canada technical specifications were met.

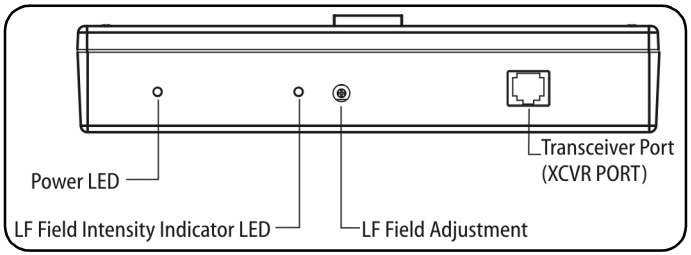
Important Recommendation

Xmark's systems are designed to assist staff in providing a high degree of safety for people and assets and therefore should be used as a component of a comprehensive security program of policies, procedures, and processes. As with every security system, **Xmark highly recommends regular system operational checks** to verify functional integrity.

Introduction

The exciter is an additional Low Frequency (LF) antenna for a Transceiver. By using exciters, additional LF Fields can be created and the tag detection zones can be extended.
Each Transceiver supports a maximum of three transceiver exciters. The LF Fields of the Transceiver and all exciters will be in phase.

Figure 1: Exciter Front Panel



The exciter is connected to a transceiver (Part Number SR4TX01) from the exciter's XCVR PORT to any one of the transceiver's three SATELLITE EXCITERS ports using a standard ethernet cable (CAT5, EIA 568A termination). The exciter also draws its power from this connection.

Firmware Updates

The exciter does not contain firmware. Its operating features are dependent on the Transceiver.

Installation Tips

When installing the exciter:

- Use both mounting holes to ensure that the exciter is secure.
- Mount the exciter so that the front panel is easily accessible and visible from the floor. If mounting above a ceiling, place the exciter so that the front panel is visible from the floor when a ceiling tile is removed.
- Check that the LF Field radiated by the exciter(s) and the Transceiver is continuous (no dead spots) and that it covers the correct area. See *"Configuration"* on page 4.

Location Selection

Any of the following are suitable locations for an exciter:

- On the wall above the egress point or monitored area.
- Inside a wall cavity.
- On the sidewall along the hallway mounted flat against the wall.

Location Considerations

When planning the exciter location, consider the following:

- **Ceiling Height and Corridor Width** — The exciter LF Field should extend to the floor and from one wall of the corridor to the other. Tags must not be able to pass under or around the LF Field.
- **Any Nearby Metal** — Large metal surfaces close to the exciter can distort the LF Field in unpredictable ways. This effect can increase or decrease the LF Field strength and even extend the LF Field shape. At times this effect can be used to advantage but the desired result can only be obtained experimentally. Metal plate, foil, or mesh must not come between the exciter and the tags to be queried and read. The exciter top, bottom, and rear panels must be at least 3 in. (7.6 cm) from any metallic surfaces.
- **LF Field Shape** — In the absence of large metal objects the LF Field is a sphere with a 15 ft. (4.5 m) maximum radius centered around the exciter. As a result, the LF Field range is unaffected by rotating the exciter, or by placing the exciter vertically or horizontally.
- **Adjacent Floors** — If the LF Field extends into adjacent floors, it will cause tags on the adjacent floors to be reported as if on the exciter floor.

LF Field Coverage

When the exciter is used to monitor an egress point, such as a door or elevator, the LF Field(s) should cover all possible approaches. As many as three exciters can be used with a single Transceiver to modify the LF Field for this application. Tags must be detected at least 8 ft. (2.4 m) before the door when the Transceiver is part of a door locking system. This ensures adequate time for the lock to energize before the tag reaches the doorway.

The LF Field should not extend into adjacent areas, including adjacent floors, containing tags. These tags could cause the Transceiver to activate the lock even though tags are not approaching the exit.

Exciter Installation

To install the exciter:

1 Mount the exciter with #8 hardware using the two mounting holes.

2 Record the exciter location for later consideration.

3 Route the cable (not supplied) from the exciter to the Transceiver.

4 Disconnect the Transceiver from its power supply.

5 Plug the cable into the Transceiver and the exciter.

6 Reconnect the Transceiver power supply.

7 Verify that the exciter power LED and the field intensity LED are on. See Figure 1 for the location of these indicators. If they are not lit, check that the Transceiver has power, and that the cable plug is properly inserted.

8 Adjust the exciter LF Field as described in "Configuration" below.

Configuration

The exciter is configured by adjusting the LF Field strength and size.

Before you set the LF Field Strength

Ensure that the Transceiver UHF Threshold is properly set: That is, the red UHF Rx LED on the Transceiver is lit most of the time but continues to flicker occasionally. If this is not true, set the UHF Threshold as described in the Transceiver Installation Manual.

The LF Field causes a tag to transmit a UHF message to the Transceiver. When in test mode, the Transceiver beeps when a tag message is successfully received. The beeping sound allows you to estimate the LF Field size.

The LF Field should be:

- Strong enough to make the tag respond throughout the desired area. That is, the Transceiver beeps continually while the tag is anywhere within the desired area.
- *Not* strong enough to make the tag respond outside of the desired area. That is, the Transceiver does not beep when the tag is outside of the desired area.
- *Not* strong enough to bleed onto adjacent floors. That is, the Transceiver does not beep when the tag is on an adjacent floor.

To set the LF Field:

1 Set test mode by moving switch 1 down on the transceiver's MODE DIP swtich block.

2 Confirm tag operation by holding the tag close to the Transceiver. The Transceiver should beep continuously.

3 Using the tag, explore the desired coverage area while constantly re-orienting the tag with respect to the exciter. The Transceiver should beep continuously.

Within the desired coverage area there may be locations with low LF Field strength called **dead spots**. The Transceiver will stop beeping when the tag enters a dead spot. The size and number of dead spots should be *minimized.* However, a small number of dead spots may be acceptable.

Some dead spots are less important than others. For example, if the aim is to record the movement of tags through a door, a dead spot far from the door may be less important than one near the door.

4 If the dead spot size and number is unacceptable, or if the LF field coverage area is too small, increase the strength of the LF field by turning the LF FIELD ADJ screw on the exciter clockwise.

The exciter adjustments are delicate. **Do not turn the adjustments forcefully to the limits. Do not needlessly wiggle or turn the adjustments.**

As you turn the LF FIELD ADJ screw, the LF FIELD INTENSITY Indicator becomes:

- Brighter as you turn the ADJ screw clockwise and increase the LF Field strength;

—or—

- Dimmer as you turn the ADJ screw counterclockwise and decrease the LF Field strength.

5 If the tag is detected outside of the desired area, decrease the LF Field strength by turning the adjustment counterclockwise until *detection is limited* to the desired area.

Be aware that if the LF field reaches into adjacent floors it may cause tags on those floors to be reported as if on the exciter floor.

6 Continue moving between steps 4 and 5 to achieve the best compromise between a *minimum number of dead spots*, and *limited detection*.

7 If a suitable compromise cannot be achieved, consider relocating the exciter and repeating the procedure.

8 When you have successfully set the LF Field strength, turn off test mode on the transceiver and fix the exciter cables permanently in place.

Tip: If the exciter is above a suspended ceiling, place a colored adhesive dot on the ceiling tile to mark the exciter location. Consult facility management before placing the dots.

Specifications

Part Number SR4EX01

Physical Specifications

Operating Temperature . . . . . 32º F to 131º F (0º C to 55º C)

Humidity . . . . . 0 – 90% RH non-condensing

Size including mounting bracket (W x H x D) . . . . . 8.62 in. x 1.5 in. x 6.5 in. (21.9 cm x 3.81 cm x 16.5 cm)

Maximum Cable Length . . . . . 20 ft. (6 m)

Weight including mounting bracket . . . . . 19.4 oz. (551 g)

Electrical Specifications

Maximum Power . . . . . 150 mA @ 24 VDC — The exciter is powered by the Transceiver.

Transmit Frequency . . . . . 307.2 kHz

LF Detection Zone . . . . . 5 ft. – 15 ft. (1.5 m – 4.6 m), adjustable

309 Legget Drive Ottawa, ON Canada K2K 3A3
Telephone:1.866.55.XMARK
International:+1 (613) 592.6997
Facsimile:(613) 592.4296
Web site:www.xmark.com
E-mail:support@xmark.com

Printed in Canada. October 2007. 981-000305-000 R02.