



**Frequently
Asked
Questions For**

**AX-100TFR
AX-200TFR**

**Battery Operated
Photoelectric Detectors**

AX-100/200TFR series

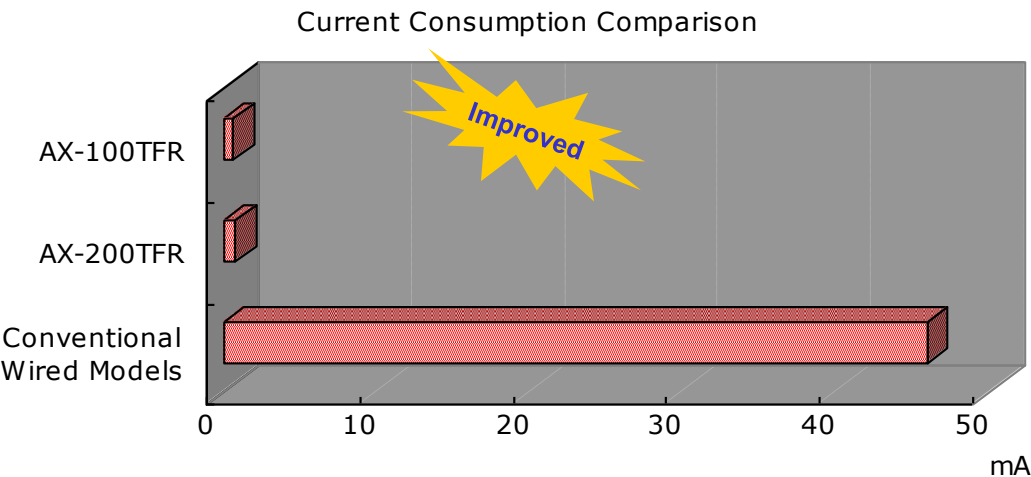
Frequently Asked Questions (FAQ's)

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Q-01: How efficient is the AX-TFR's energy consumption compared to conventional wired model?

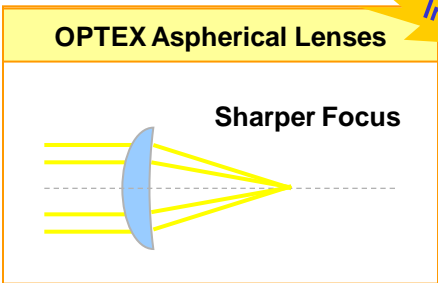
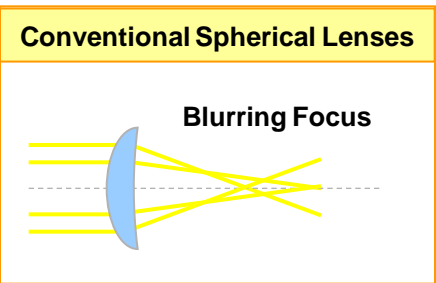
A-01: Compared to OPTEX wired photobeams detector, AX-100/200TF, the level of energy consumption is reduced down to 1/60.



	Model Name	Current Consumption	Model Name	Current Consumption
New Wireless Model	AX-100TFR	0.62mA	AX-200TFR	0.81mA
Conventional Wired Model	AX-100TF	44mA	AX-200TF	48mA

Q-02: How did you achieve low energy consumption?

A-02: Not only implementing OPTEX low energy design, but also, AX-100/200TFR adopted high quality aspherical lenses to improve accuracy of beam focus, hence photobeams are more sharply defined and minimized usage of excessive power.



AX-100/200TFR series

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Q-03: Is AX-TFR compromised in performance because it's low-energy consuming?

A-03: Although the power consumption is lower, its performance is more than before; retaining same beam blocking ratio tolerance with new features added. AX-TFRs withstand 99% attenuated photobeams without malfunctioning.

<Basic Performance>

- 99% Beam blocking stability
- 4 selectable beam frequencies
- D.Q. circuit (Environmental disqualification)
- N.C./N.O. output selection switch
- A.G.C. circuit
- International protection IP55
- Beam interruption adjustment function
- High grade spherical lens
- Easy angle adjustment function

[For more information, please refer to P.1: FEATURES of the AX-TFR instruction manual]

Q-04: What is the power-range (VDC) required to run AX-TFR?

A-04: AX-TFRs are designed to run with current between 2.5 VDC~4.3 VDC

Q-05: Why do I have to use SAFT 's LSH20 (3.6 VDC) instead of ordinary CR123A (3.0 VDC)?

A-05: Ordinary CR123A (3.0 VDC) does not have enough capacity for running an AX-TFR for a longtime. To run an AX-TFR, thirty-two CR123A cells are necessary whereas, LSH20 guarantees 3 years of operation just with four cells. LSH20, despite its uniqueness, it is widely available and its reliable performance is often used in various military forces worldwide.

<LSH20>

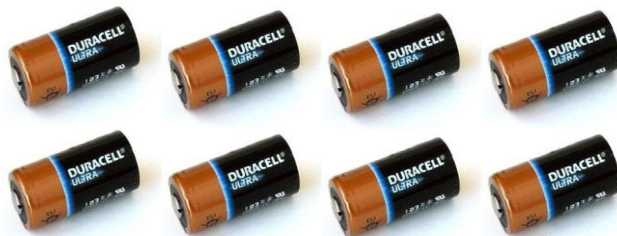
Temperature Range: -60 ~ 85 degree C

High Heat Durability: 120 degree C

Battery Life: 10 years



LSH20
(3.6VDC, 13.0Ah)



CR123A
(3.0VDC, 1.6Ah)

[For more information about the SAFT battery, please refer to a website:
<http://www.saftbatteries.com/>]

Q-06: What happens if I use batteries other than SAFT's LSH20 (3.6VDC)?

A-06: Usage of batteries other than LSH20 may result in followings.
Shorter or unstable operation time
Permanent damages to the AX-TFRs
Causing fire and/or emissions of toxic gas.

Q-07: Can AX-TFRs operate with one battery for each TX (transmitter) and RX (receiver)?

A-07: Yes, It is possible that AX-TFRs operate with one LSH20 for each TX and RX. Please also be aware that using one LSH20 will reduce the expected operation period and make AX-TFRs more vulnerable to shocks and vibrations.

Q-08: How long do LSH20 batteries last?

A-08: Under ordinary conditions LSH20 batteries last at least 3 years.

For AX-100TFR (30m): Approx. 5 years

For AX-200TFR (60m): Approx. 3 years

- * Use four LSH20 batteries manufactured by SAFT (not included)
- * Battery life is stated for a condition that it is used within the ambient temperature range of 20 to 25 degree Celsius.
- * Battery life of AX-200TFR Transmitter (TX) is approximately 3 years whereas Receiver has approx. 5 years of life.

Q-09: What affect the battery life of AX-TFRs?

A-09: Colder climate may shorten the operation period. Since AX-TFRs do not share power supply with wireless transmitters, expected life period will not be affected by frequency of alarms.

Q-10: What happens if I accidentally insert batteries upside down?

A-10: Battery box (Back box) will not turn on electricity with LSH20 batteries upside down. AX-TFRs will neither be operating nor be affected.

Q-11: At what power voltage, Low battery signal is turned on?

A-11: Low Battery Indicator and Output will be turned on at 3.0VDC.

Important note:

> Please remove all batteries prior to replacing with new ones. If this is not done, the low battery indication LED will not reset and continues to flicker.

Q-12: How can I be aware of Low battery status?

A-12: There are two ways to check Low battery status.

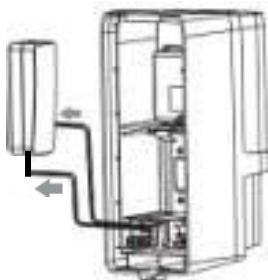
(1) LED indicator for Low battery status

When batteries are low, Low Battery Indicator LED blinks while front cover is opened. (While the front cover is closed, LED indicator is put off to minimize power usage.)

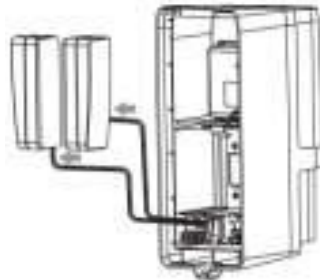


(2) Using Wireless transmitter for receiving Low battery signal.

If a wireless transmitter is available with more than one input, connecting Low Battery Output to the wireless transmitter will enable monitoring of Low Battery status by control panels. If the wireless transmitter is only equipped with one input, then please use another wireless transmitter to accommodate the low battery signal.



Wireless transmitter
with two or more inputs



Wireless transmitter
with one input

[Instruction manual P.11: OPERATION CHECK describes LED status in details.]

Q-13: Why can't I share TFR's batteries with wireless transmitters?

A-13: AX-TFRs cannot share battery powers with wireless transmitters because AX-TFRs do not comply with low battery voltages assigned in most of wireless transmitters. If overridden, there is a risk that, before wireless transmitters acknowledge low battery status, AX-TFRs may terminate their operations.

	Operating Voltage (VDC)	Low Battery Voltage (VDC)	Cut Off Voltage (VDC)
Wireless Transmitters	3.0 – 3.6	2.3 – 2.7	2.0
AX-100/200TFR	3.6	3.0	2.5

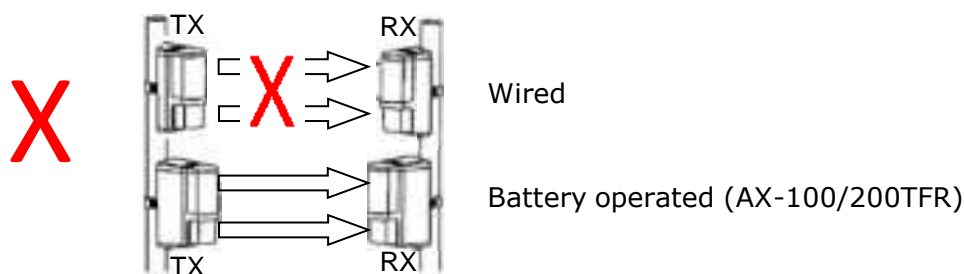
(TABLE: Voltage ranges for operation status)

Q-14: Can I combine AX-TFRs with wired models?

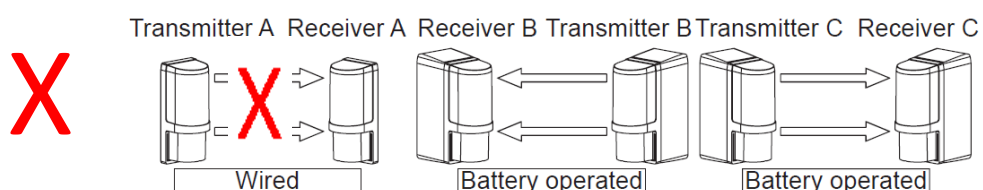
A-14: No, please do not install AX-TFRs with any other photoelectric detector. It may cause failure to detect intrusions. If the receiver (RX) of AX-TFRs receives any beam from another wired photoelectric detectors, it becomes a factor of false alarm.

In case, using AX-TFRs with OPTEX's wired photoelectric detectors in the same site, please make sure that any beam does not come in sight of AX-TFRs.

<NOT FEASIBLE> Stacking AX-TFR with a wired photo beam



<NOT FEASIBLE> Arranging AX-TFR in a line with wired photobeams



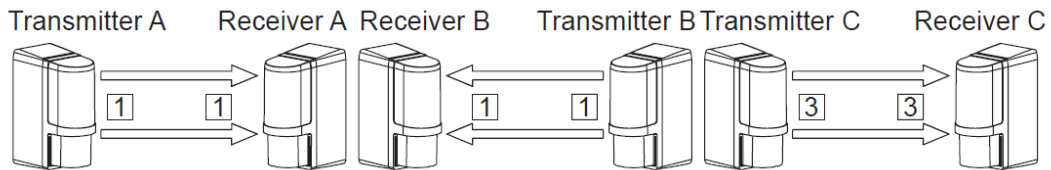
The cross (X) mark indicates prohibition.

AX-100/200TFR series

Frequently Asked Questions (FAQ's)

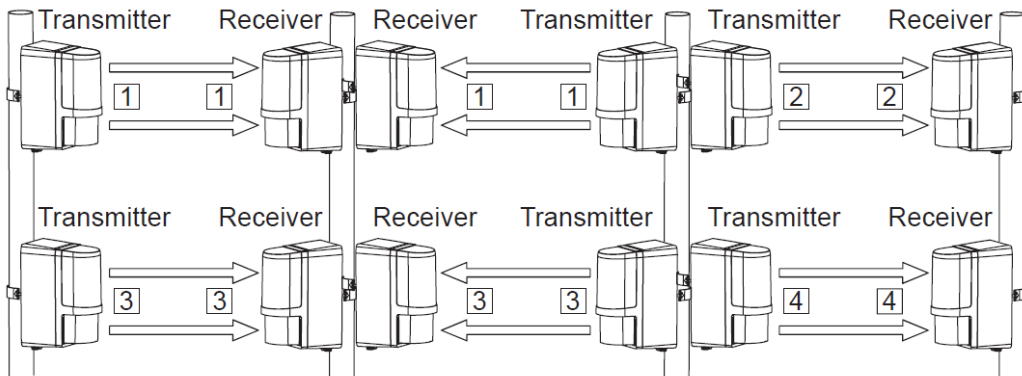
Q-15: How long can AX-TFRs constitute a linear protection?

A-15: AX-100TFRs can protect long distance without limitation. Please choose channel settings as suggested in a diagram below. It is important to set apart adjacent beam channels from next to each other to secure reliability.



Q-16: Can I arrange AX-TFRs in a stack?

A-16: Yes, Double stacked protection is possible.



<Configuration example for a double stacking protection>

Important notes:

> Between two separate zones, please make sure that beams with the same channel do not overlap in the same direction unless receivers are away 10X the distance of 100/200 feet [30m/60m] from beam transmitters (1000 feet [300m] for AX-100TFR, 2000 feet [600m] for AX-200TFR)

[For more detailed information, please refer to the instruction manual P.8: SETTING]

AX-100/200TFR series

Frequently Asked Questions (FAQ's)

Q-17: Can I mount AX-TFRs on walls, poles or in towers?

A-17: Yes, you can. It is also possible to mount two AX-TFRs on a same pole, back to back. When you mounting an AX-TFR in a beam tower, an optional unit "MP-4" (indicated in a picture below) is required. MP-4 includes tamper bushings for LED termination.



Wall mount



Pole mount
(Single detector)



Pole mount
(Two detectors)



Tower in-mount
MP-4 (Option)
required



Metal Plates



Tamper Bushings

MP-4 (Optional kit)

Important notes:

- > The switch selection cannot be recognized with the tamper bushing inserted. Remove the tamper bushing before selecting a function using the switch.
- > After completion of the settings, be sure to insert a tamper bushing and please check that all LEDs are turned OFF.
- > Monitor Jack Output becomes disabled when tamper bushing inserted.
- > When inserting the tamper bushing, reception indicators for beam alignment will be disabled. Please complete the alignment tuning before inserting the tamper bushing.

[For installation instruction, please refer to P.3-7 of the instruction manual.
P.12: SPECIFICATION describes more about the MP-4.]

Q-18: What features does a backbox have?

A-18: AX-TFRs' back boxes feature three installer friendly specifications.

(1) Spacious & Universal design

A Backbox can accommodate two wireless transmitters. Battery holder is designed to ignore batteries installed upside down. Double-sided tapes are also included in a package to hold transmitters in the box.



(2) Pre-wired color cables for easier installation.

Wiring to wireless transmitters is made as easy as possible. Matching patterns are indicated on a label placed on a side of the box.



《 Wire Connections 》				
		Alarm	Low Battery	Tamper
Receiver	N.C.	Yellow	Green	Black
	COM.	Yellow / White	Green / White	Black / White
Transmitter	N.C.	—	Green	Black
	COM.	—	Green / White	Black / White

(3) Tamper alarm to acknowledge both backbox and front cover removal. Tamper alarm works in three ways. Either removal of the front cover, back box or mounting plate can trigger tamper output. The latter two tampers share the same output connection placed in the backbox.

(Front Cover Tamper)



(Back Box Tamper)



(Wall Tamper)



Q-19: What is an "IP rate"?

A-19: International Protection (IP) rate is the standard defined by IEC60529. AX-TFRs' rating is IP55. The first numeral indicates degrees of protection against dusts. The second numeral indicates degrees of protection against water. Please refer to the International Electrotechnical Commission website for detailed explanations (<http://www.iec.ch>)

IP 55 suggests:

Dust-protected. Ingress of dust is not totally prevented but dust shall not penetrate in a quantity to interfere with satisfactory operation of the apparatus or impair safety. Protected against water jets from any direction

Q-20: Can I use the “HU-2” (an optional heating unit) for AX-TFRs?

A-20: No, because the HU-2 works with 24VDC, AX-TFRs' LSH20 (3.6 VDC) can not support the heating module. Not to mention the fact that AX-TFRs do not have holes to put through wires, outside power supply cannot be accommodated either. When using AX-TFRs in a tower, usage of the HU-2 is an option; however HU-2 will not produce enough heat to resist frost and condensation inside the tower.

Q-21: What outputs are there?

A-21: There are four kinds of outputs, alarm(Form C), tamper (Form C), low battery and D.Q. Each output is available with choice of N.C. or N.O.

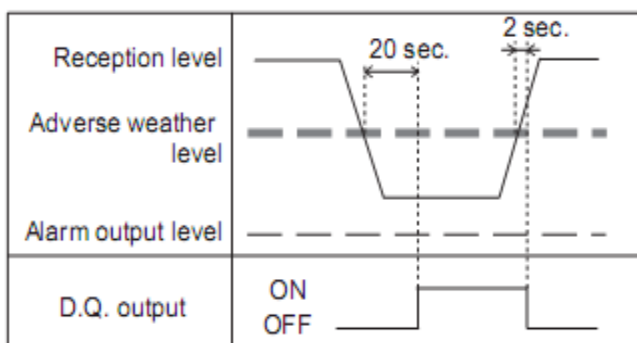
Q-22: What are initial settings for switches?

A-22: The initial settings for switches are as follows.

	Setting	Position
Interruption Time	50 msec	Up
Battery Saving	OFF	Up
Intermittent Output	OFF	Up
N.O./N.C. selection for Low Battery and D.Q. outputs	N.C.	Up

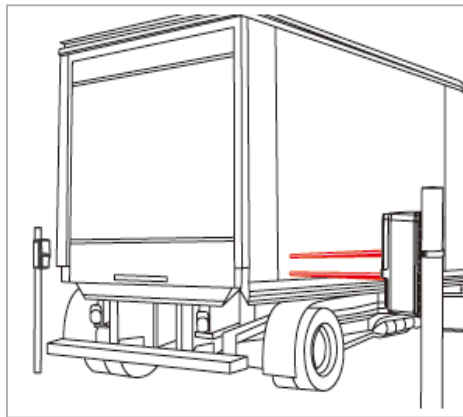
Q-23: When does D.Q. output work?

A-23: D.Q. output will send a trouble signal when the beam strength reaches below acceptable levels for more than 20 seconds, due to rain, snow, or heavy fog. D.Q. output will return to “OFF” if reception is regained for more than two seconds.



Q-24: What is an “intermittent output function”?

A-24: Intermittent output function enforces outputs to reset while photobeams continues to be interrupted. This function is effective if your wireless transmitters do not have supervised features to monitor relay status. For an example, with such transmitters, security system can be armed while beams are interrupted by an accident. Intermittent output function repeats alarms with intervals to let the system be aware of interrupted status.



(Alarm output is repeated while interruption continues.)

Important note:

- > When using this feature, alarm, tamper, low battery and D.Q. outputs are set for intermittent function simultaneously.
- > Apply same switch settings to the both TX and RX of AX-TFRs to enable the function.

Q-25: What is the “battery saving timer”?

A-25: The battery saving timer enforces 2min intervals between alarm outputs. If the site of security involves a lot of traffic or in/out of people over a detection zone, wireless transmitters may wear out batteries quickly. The battery saving timer cancels alarms for two minutes after the initial output, preserving powers of wireless transmitters.

Important note:

> Apply same switch settings to the both TX and RX of AX-TFRs to enable the function.

Q-26: Do lightning damage AX-TFRs?

A-26: No, because AX-TFRs do not require external wirings, neither electrical surge nor noise will be induced to affect operations of AX-TFRs.



Q-27: How durable is AX-TFR against vandalism?

A-27: AX-TFRs are very durable. OPTEX photobeams detectors are equipped with high-grade polycarbonate shells to withstand an attack of hammer. AX-TFRs also features triple tamper detection mechanism that monitors not only the wall attachment, but also front cover removals.




Frequently Asked Questions (FAQ's)

Disclaimer:

This document is supplied to aid an understanding of AX-TFRs' features and specifications. Please also refer to Installation Instruction manual enclosed in TFRs' packages for detailed procedures and setting configurations.

The manual as well as catalog, product images and DXF files also can be downloaded from OPTEX website (<http://www.optex.co.jp/e/>).

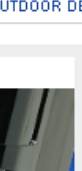


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Security Top



OUTDOOR DETECTORS

PIR DETECTORS

HX-40

HX-40AM

HX-40RAM

VX-402

VX-402REC

VX-402R

LX-402/802N

BX-80N

BX-80NR

PHOTOELECTRIC DETECTORS

AX-100TFR/200TFR

AX-100TF/200TF

AX-70TN/130TN/200TN

AX-350TF/650TF

AX-250PLUS/500PLUS

BX-100PLUS

OPTIONS

FOR OUTDOOR DETECTORS

INDOOR DETECTORS

DOWNLOAD

CONTACT US

LEVEL SURVEILLANCE

A ZONE | PERIMETER PROTECTION

B ZONE | MIDDLE AREA PROTECTION

C ZONE | BOUNDARY PROTECTION


D ZONE | INDOOR PROTECTION

site map

OUTDOOR DETECTORS PRODUCT LINEUP

AX-100TFR/200TFR

LEVEL SURVEILLANCE A ZONE



Catalog PDF

Manual PDF

product photo

DXF

BATTERY OPERATED PHOTOELECTRIC DETECTOR

The AX-100/200 TFR series is a "REVOLUTION" in the perimeter security industry, offering a significant cost saving alternative to a traditional hardwired system.

AX-100TFR – Detection range 30m

AX-200TFR – Detection range 60m

commercial

light commercial

industrial

FEATURES

- Long battery life
AX-100TFR: approx. 5 years
AX-200TFR: approx. 3 years
Battery life of AX-200TFR receiver is approx. 5 years
- Easy battery replace ment
- Triple tamper functions
- Low battery output and LED indication
- Inter mittent output function
- Compatible with numerous wireless transmitters
- Battery saving timer function for wireless transmitters

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