

# AX-100/200TFR

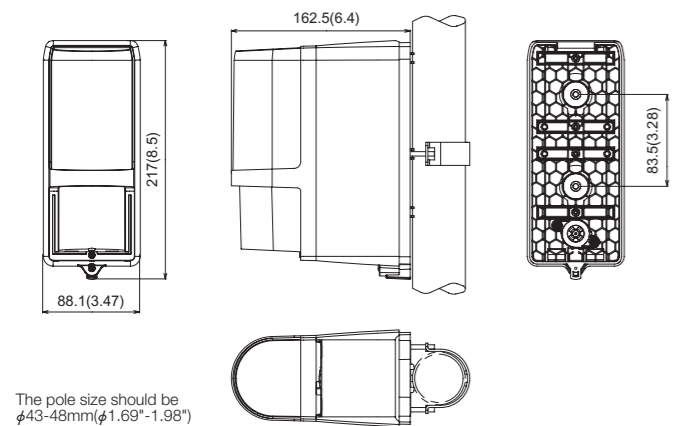


## SPECIFICATIONS

Model	AX-100TFR	AX-200TFR
Range	30m (100ft.)	60m(200ft.)
Maximum arrival distance	265m (870ft.)	530m (1,740ft.)
Detection method	Infrared beam interruption detection	
Beam frequency selection	4 channel	
Interruption period	Variable between 50, 100, 250, 500msec (4 steps)	
Power Source	3.6V 13.0Ah : LSH20 lithium batteries manufactured by SAFT(not included) Transmitter : 2 units Receiver : 2 units	
Current draw	620μA T:300μA + R:320μA (at 25°C,3.6VDC)	810μA T:490μA + R:320μA (at 25°C,3.6VDC)
*Battery life	Transmitter Receiver 5 years	3 years 5 years
Alarm output	Form C-Solid State Switch : 3.6 VDC, 0.01A	
Alarm period	2 sec (± 1) nominal	
D.Q. output	Form A/B-Solid State Switch : 3.6 VDC, 0.01A	
Low battery output	Form A/B-Solid State Switch : 3.6 VDC, 0.01A (Transmitter & Receiver)	
Tamper output for Front cover	Form C : 3.6VDC, 0.01A activates when cover removed. (Receiver only)	
Tamper output for Back box	Form C : 3.6VDC, 0.01A activates when either back box or chassis is removed from the installment.	
Indicator	(1) Light on - IR Beam not received. (2) Flickering Light - IR Beams not received sufficiently. (3) Light off - IR Beams received.	
Power (Transmitter)	Power ON : ON, Power OFF : OFF	
Low battery	Voltage Reduction : flicker	
Operating temperature	-20°C ~ +60°C(-4°F ~ +140°F)	
Operating ambient humidity	95%(Max.)	
Alignment angle	± 90° Horizontal, ± 5° Vertical	
Mounting	Indoor/Outdoor, Wall/Pole/Tower mounting (Optional main unit mounting brackets are required, when the units mount in the tower.)	
Weight	1600g (56.5oz) (Total weight of transmitter + receiver,excluding accessories)	
International protection	IP55	

Specifications and design are subject to change without prior notice.  
\* The value is based on the condition that it is used within the ambient temperature range of 20 to 25°C.

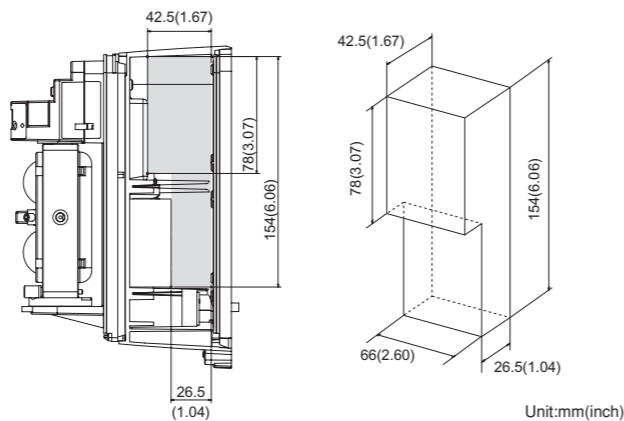
## DIMENSIONS



The pole size should be  
φ43-48mm(φ1.69"-1.98")

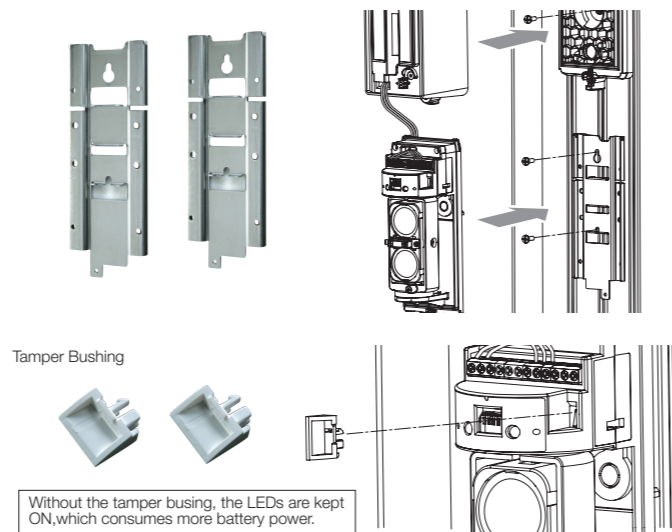
## SPACIOUS BACK BOX

The following figure shows the dimensions of the wireless transmitter installation space in the back box. Note that transmitters with dimensions greater than those are not applicable.



## OPTIONS

**MP-4** : Main unit mounting bracket set (for tower mounting)  
Main unit mounting bracket



**NOTE:**  
These units are designed to detect an intruder and activate an alarm control panel. Being only a part of a complete system, we cannot accept responsibility for any damages or other consequences resulting from an intrusion.These products conform to the EMC Directive 2004/108/EC.

**Save Time,  
Save Energy.  
"GO WIRELESS"**



**OPTEX CO., LTD.** (ISO 9001 Certified / ISO14001 Certified)  
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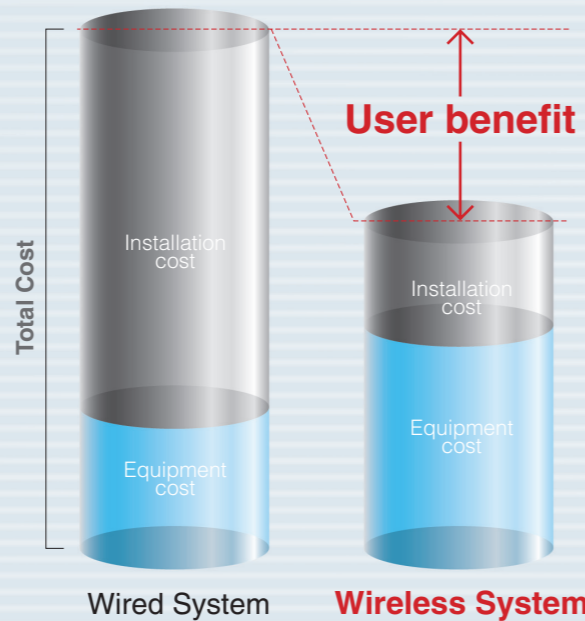
No. 75116-00-1547-0904



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

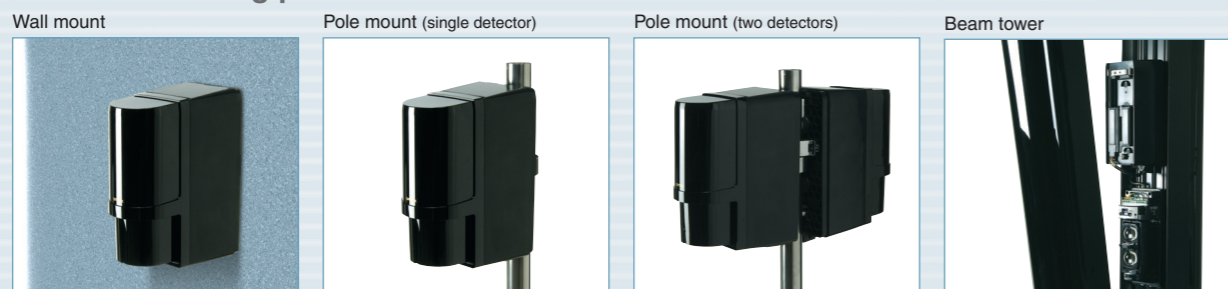
## Advantage of Wireless Photoelectric Detector

### 1 Low installation costs



- 2 Quick & easy installation
- 3 Flexible location
- 4 Wireless stylish design
- 5 Free from lightning damage
- 6 Compatible with numerous wireless transmitters

### Various mounting patterns



Optional bracket(MP-4) required

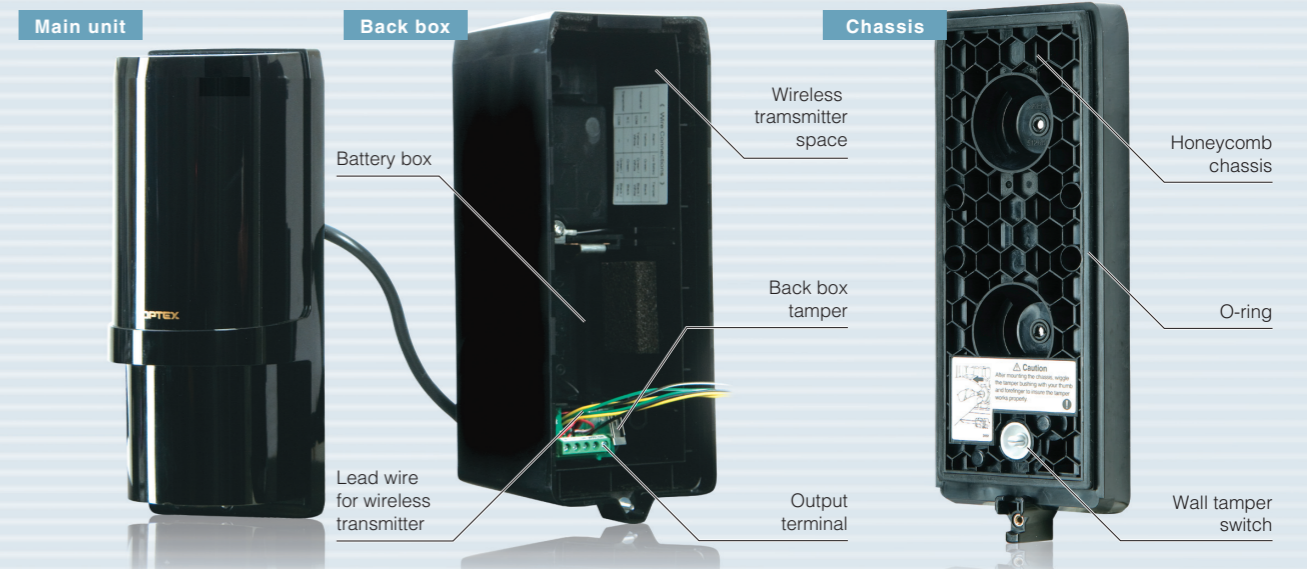
## New features

### Long battery life

- AX-100TFR(30m) : Approx. **5 years**
- AX-200TFR(60m) : Approx. **3 years**

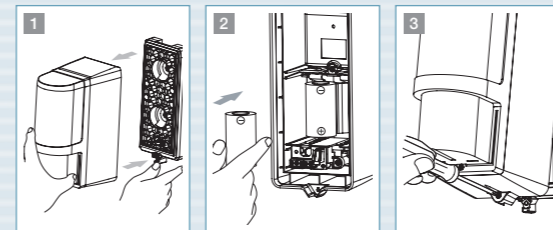
\*Use four LSH20 (3.6V, 13Ah) batteries manufactured by SAFT(not included).  
\*\*Battery life of AX-200TFR receiver is approximately 5 years.

### Multi functional back box



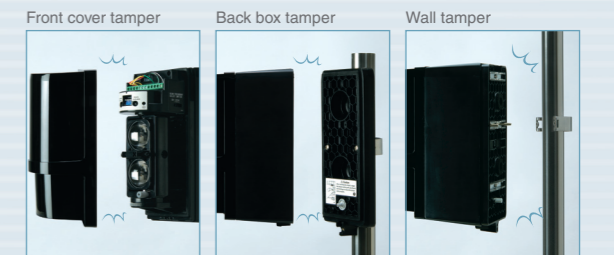
### Easy battery replacement

It allows you to easily replace the batteries without opening the front cover. Not necessary to do the optical alignment.



### Triple tamper functions

Form C output activates when either cover or back box as well as chassis is removed.



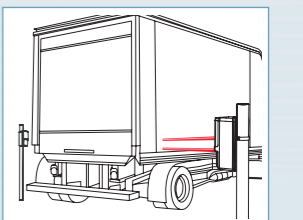
### Low battery output and LED

The unit automatically outputs when the battery power becomes low.  
\*To monitor the low battery signal, another wireless transmitter is required.  
Low battery LED will flicker when a front cover is removed.



### Intermittent output function

Alarm Signals are sent periodically to avoid missed alarm while the beam is broken. Its function is effective for wireless systems which do not recognize "Restore" status.



### Battery saving timer

Alarm output activation are limited by a timer to 2 minutes. Even if there are continuous alarm events, the alarm output operates only once in the timer period. It prolongs the battery life of a wireless transmitter.

## Basic performance

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

## Wireless PowerG Door/Window Contact with Auxiliary Input **PG4945**



### Features That Make a Difference:

- **PowerG\*** robust industry leading commercial grade wireless technology
- Visible link quality LED indicator shown on device
- Option Configurable Auxiliary Input
- Fully supervised
- Compatible with PowerSeries Neo systems

#### **The power of PowerG\*:**

The power behind PowerSeries Neo lies in various innovative technologies, including the revolutionary PowerG, which, bundled together, provide a robust and feature-rich platform designed to reduce operational costs for dealers and provide ultimate reliability for end users.

- Multichannel, Frequency Hopping Spread Spectrum technology - to overcome frequency blocking and interference
- Adaptive Transmission Power - for battery life preservation
- High transmission ranges - for reliable communication within up to 2km/2187 yards line-of-sight
- TDMA synchronized communication technology - to prevent message collisions
- 128 bit AES encryption - high level protection against analysis tools and digital attacks



### **PG4945 Wireless PowerG Door/Window Contact with Auxiliary Input**

The PG4945 Wireless PowerG Door/Window Contact with Auxiliary Input is installed on common intrusions points such as windows and doors to provide perimeter protection of the premise. The PG4945 is designed to communicate with the security system to report openings and closings of doors & windows. Known for its versatility and reliability, the PG4945 is an easy to install device ideal for a wide range of environments.

### **Easy to Install | Link Quality Indication**

The PG4945 PowerG Door/Window Contact is equipped with a visible link quality LED indicator on the contact that lets the installer choose the optimal location for installation, eliminating the effort of going back and forth to the keypad. Additionally, device configuration is quick and easy with no hardware switches or need to re-open devices. All device configuration settings are handled on the system keypad.

## Dependable and Versatile

The PG4945 contact features an auxiliary input that can be used to easily connect a standard hardwired contact. The auxiliary input can be configured to be Normally Open, Normally Closed or Single End-of-Line (4.7K Ohm). This feature is useful in installations where space is of a premium and it is difficult to mount the magnet within the maximum allowable gap of the contact.

## Specifications:

Dimensions:..... 81 x34 x 25mm (3.19 x 1.25 x 1in)  
Battery Life: .....up to 8 years (typical use)  
Battery Type: .....3V CR123A Lithium Battery  
Weight: .....53g (1.9oz)  
Operating Temperature: .. -10°C to 55°C (14°F to 131°F)

## Approvals:

FCC/IC, UL/ULC

Please refer to [www.dsc.com](http://www.dsc.com) for the most current approval listings.

## Compatibility:

PowerSeries Neo Systems

## PowerSeries Neo is Security Redefined

PowerSeries Neo by DSC redefines intrusion security by combining the flexibility of a modular, hardwired system with the simplicity of a wide range of wireless devices and peripherals, resulting in the most comprehensive hybrid system available in the market today.

This brand new and exceptionally flexible platform leverages the superior capabilities of PowerG – the industry’s leading-edge wireless intrusion technology. Innovative alarm verification solutions, together with an exceptionally comprehensive remote service suite, make PowerSeries Neo the ideal first-class solution for residential and scalable commercial installations.



## Specifications OPXBCU-5

The OPXBCU-5 is shares power source and low battery signals between the main unit and the wireless transmitter for OPXSL-350QFR/350QNR Series and OPXAX-100TFR/200TFR Series.

- Input voltage: 3.2 - 4.0 VDC
- Low battery input (EX +/-): N.C. input only
- Current draw: Approx. 5  $\mu$ A at 3.6 VDC (no load)
- Output voltage: Normal : Approx. 3.0 - 3.6 VDC
- Low battery : Approx. 2.0 - 2.6 VDC
- Output current: 100 mA (max)
- Operating temperature: -20°C - +60°C (-4°F - +140°F)
- Operating humidity: 95% (max)

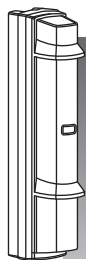
The OPXBCU-5 is compatible for the following models series:

- OPXAX-100TFR, OPXAX-100TFRD, OPXAX-100TFR-BYOTX
- OPXAX-200TFR, OPXAX-200TFRD, OPXAX-200TFR-BYOTX
- OPXSL-350QFR, OPXSL-350QFRD, OPXSL-350QFR-BYOTX
- OPXSL-350QNR, OPXSL-350QNRD, OPXSL-350QNR-BYOTX





# INSTALLATION INSTRUCTIONS



## Smart Line series OPTION

### BATTERY COMMON USE UNIT **BCU-5**

-Share power source and low battery signals between the main unit and the wireless transmitter.

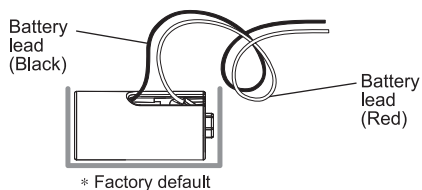
**PARTS IDENTIFICATION** PCB x 1, Dummy battery x 2, Power cable x 1

**Caution** Do not connect the dummy battery units in series.

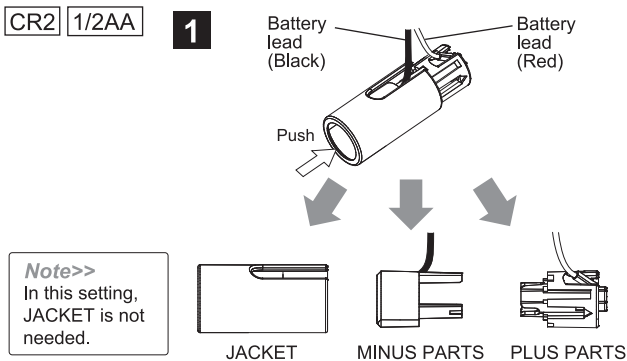
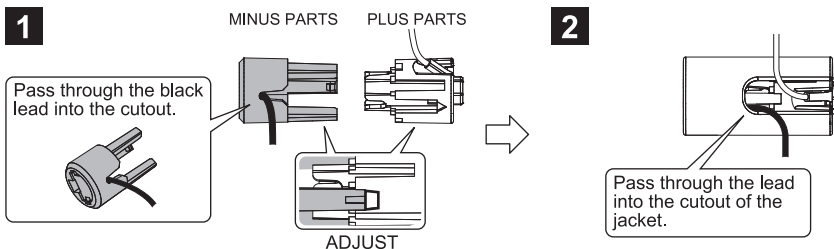
## PREPARATION

### Dummy Battery unit

**CR123A** For CR123A, use the unit as the factory default setting.



• Once disassembled, see the steps below to reassemble the unit.



### Warning

- Do not touch the ends of the red and black wires to avoid short-circuit.
- Do not pull the wire when taking out the parts from the jacket.

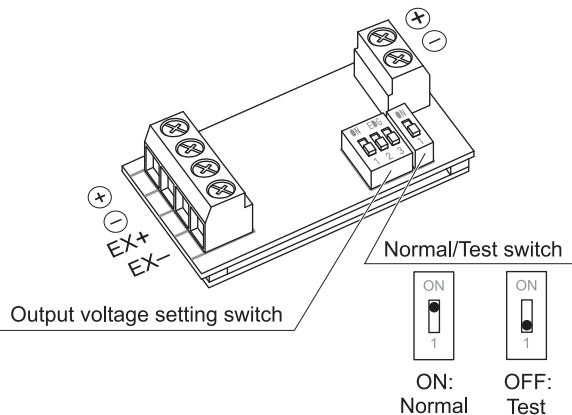
## SETTING

**1** Refer to the following chart and set the output voltage setting switch to match the power source voltage and low battery output voltage.

If the low battery output voltage is known, set the DIP switch accordingly.

If the low battery output voltage is not informed, firstly set as L-1(2.3V) for its operating voltage 3.0V or H-1(2.6V) for 3.6V.

**2** Wire the detector, the wireless transmitter and BCU-5.



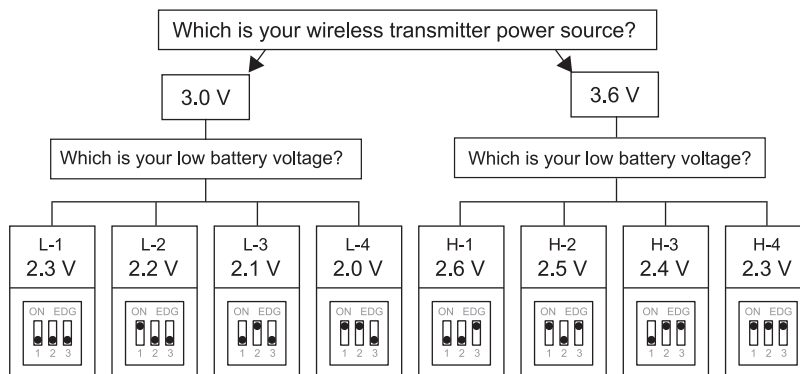
### Note>>

- It may take time for some wireless transmitters to output the signal.

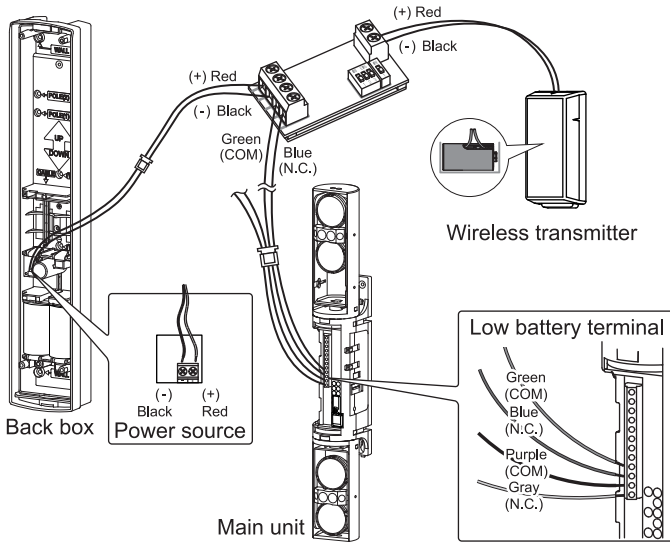
**3** Set the battery to the detector, and confirm the low battery signal is not generated.

**4** Change position of "Normal/Test switch" to "Test" from "Normal". And, confirm the low battery signal is generated from the wireless transmitter. If the low battery signal is not generated, set one lower voltage with "Output voltage setting switch" step by step, e.g. L-1(2.3V) to L-2(2.2V) or H1(2.6V) to H2(2.5V), then L-2(2.2V) to L-3(2.1V) or H-2(2.5V) to H-3(2.4)

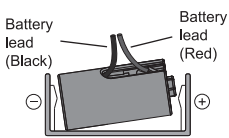
**5** When low battery signal is generated, it is the low battery output voltage. Remove the battery, and put the "Normal/Test switch" position to "Normal" from "Test" .



## WIRING



Place the dummy battery in the power supply case of the wireless transmitter.



### Note>>

- When the dummy battery assemble, do not connect battery leads to power source.
- Make sure that the device is not energized when combining units.

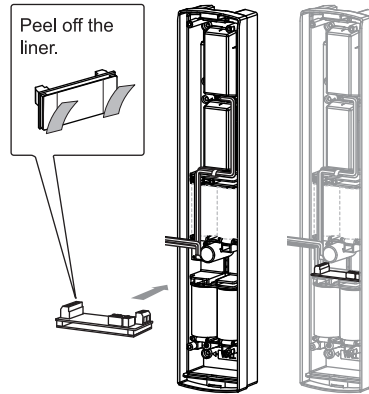
### ⚠ Caution

Do not pull the wire when taking out the dummy battery from the wireless transmitter.

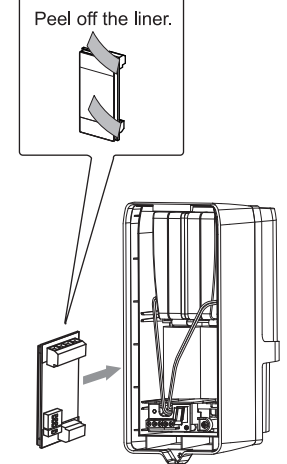
## MOUNTING

Mount the PCB to the back box with double-faced tape.

### SL-350QFR/QNR



### AX-100TFR/200TFR

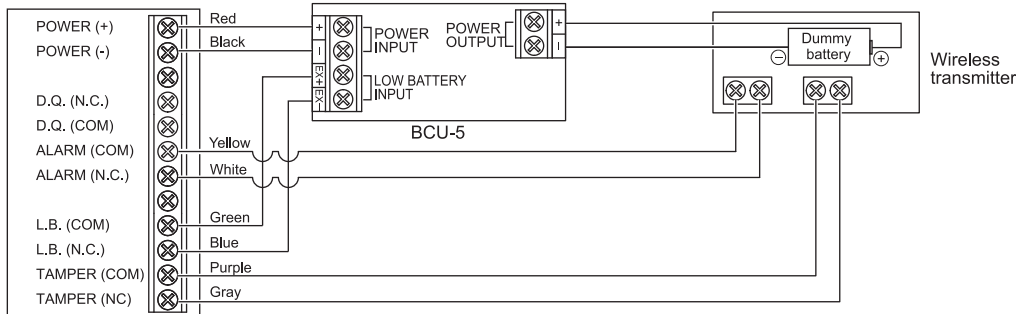


### Note>>

- Wiring and mounting procedures for other Optex photoelectric detectors, refer to the instructions for each detector.

## SYSTEM DIAGRAM

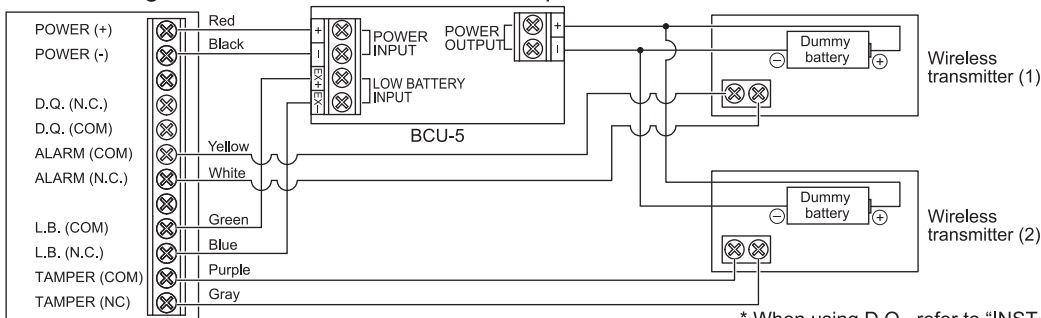
< When using 1 wireless transmitter/ N.C. output >



### ⚠ Caution

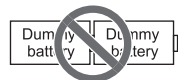
- Be sure to place the dummy battery in the power supply case of the wireless transmitter. Use of the battery included with the wireless transmitter will damage the batteries in the detector.

< When using 2 wireless transmitters/ N.C. output >



### ⚠ Caution

- Do not connect the dummy battery units in series.

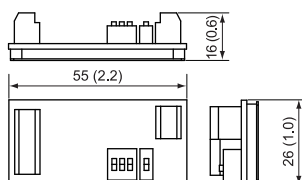


\* When using D.Q., refer to "INSTALLATION INSTRUCTIONS" of SL-350.

## SPECIFICATIONS

Input voltage	3.2 - 4.0 VDC	
Low battery input (EX+/-)	N.C. input only	
Current draw	Approx. 5 $\mu$ A at 3.6 VDC (no load)	
Output voltage	Normal	Approx. 3.0 - 3.6 VDC
	Low battery	Approx. 2.0 - 2.6 VDC
Output current	100 mA (max.)	
Operating temperature	-20°C - +60°C (-4°F - +140°F)	
Operating humidity	95% (max.)	

## DIMENSIONS



Unit: mm (inch)



**OPTEX CO., LTD. (JAPAN)**

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**OPTEX INC. (U.S.)**

URL: <http://www.optexamerica.com>

**OPTEX DO BRASIL LTDA. (Brazil)**

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## LSH 20

### Primary Li-SOCl<sub>2</sub> cell

High power density 3.6 V D-size spiral cell

Saft's LSH 20 cell is ideally suited for long-term applications (typically from 5 to 20+ years), featuring high drain / high pulses currents.

#### Benefits

- High power / high energy densities (65 W/kg and 468 Wh/kg)
- High voltage response, stable during most of the lifetime of the application
- Wide operating temperature range (-60°C / +85°C)
- Low self-discharge rate, compatible with long operating life (less than 3% per year of storage, at +20°C, after 1 year)
- Superior resistance to corrosion
- Low magnetic signature

#### Key features

- Spiral construction
- Built-in safety vent
- Finishing top with 5 A fuse
- Hermetic construction with glass-to-metal seal
- Stainless steel can
- Non-flammable electrolyte
- RoHS and REACH compliance
- Made in France

#### Designed to meet all major quality, safety and environment standards

- Safety: UL 1642, IEC 60086-4
- Transport: UN 3090 and UN 3091
- Quality: ISO 9001, Saft Excellence System, continuous program

#### Typical applications

- Utility Metering
- Tracking systems
- Dataloggers
- Alarms and security
- Wireless sensors
- Military radios

**NATO Stock Number**  
6135 14 440 1213



#### Electrical characteristics<sup>1</sup>

Nominal capacity (under 14 mA, +20°C, 2.0 V cut-off) <sup>3</sup>	13 Ah
Open circuit voltage (at +20°C)	3.67 V
Nominal voltage (at 2 mA, +20°C)	3.6 V
Nominal energy	47 Wh
Pulse capability <sup>4</sup>	Up to 4 A
Maximum recommended continuous current	1.8 A
For battery sizing, consult Saft	

#### Operating conditions

Operating temperature range <sup>5</sup>	-60°C / +85°C (-76°C / +185°F)
Storage temperatures (max recommended) <sup>6</sup>	+30°C (+86°F)

#### Physical characteristics<sup>2</sup>

Diameter (max)	33.26 mm (1.31 in)
Height (max)	61.31 mm (2.41 in)
Typical weight	100 g (3.5 oz)
Li metal content	approx. 3.8 g

#### Termination suffix

CN, CNR	Radial tabs
2 PF, 3 PF, 3 PF RP, 4 PF	Radial pins
CNA	Axial leads
FL	Flying leads

Other configurations upon request

<sup>1</sup>Typical values relative to cells stored up to one year at +30°C max.

<sup>2</sup>Sleeved cell.

<sup>3</sup>Dependent upon current drain, temperature, cut-off and cell orientation.

<sup>4</sup>Under 4 A / 0.1 second pulses, drained every 2 minutes at +20°C from undischarged cells during 24 h, with 10 µA base current, yield voltage readings above 3.0 V after initial stabilisation. The readings may vary according to the pulse characteristics, the temperature, and the cell's previous history. Fitting the cell with a capacitor may be recommended in severe conditions or for high pulse currents. Consult Saft.

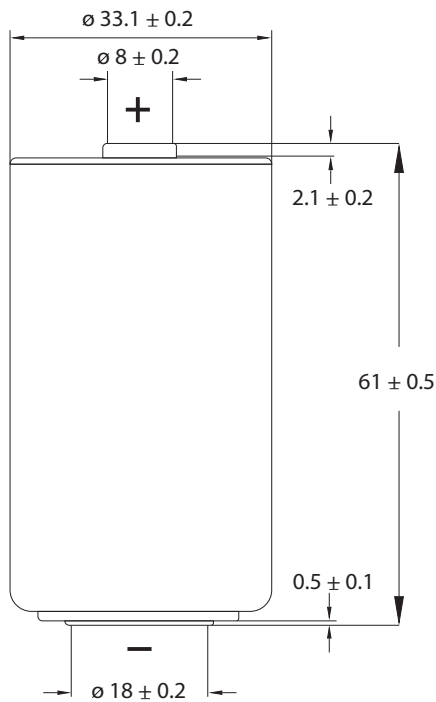
<sup>5</sup>Operation above ambient temperature may lead to reduced capacity and lower voltage readings. Consult Saft.

<sup>6</sup>For more severe conditions, consult Saft.

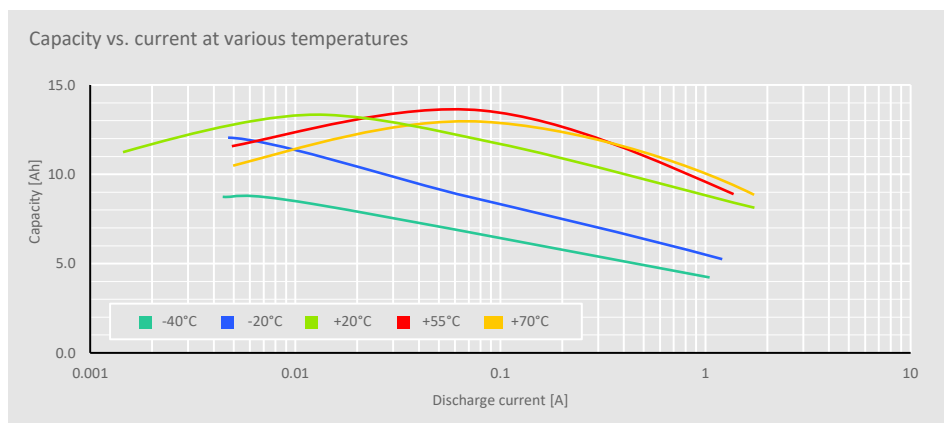
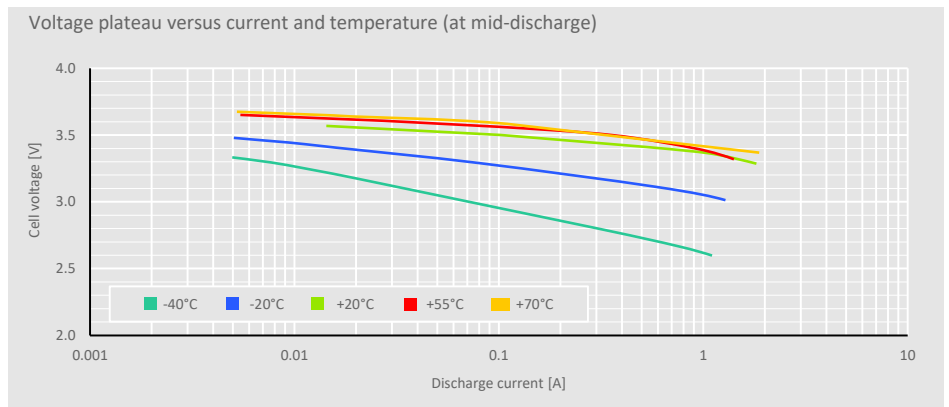
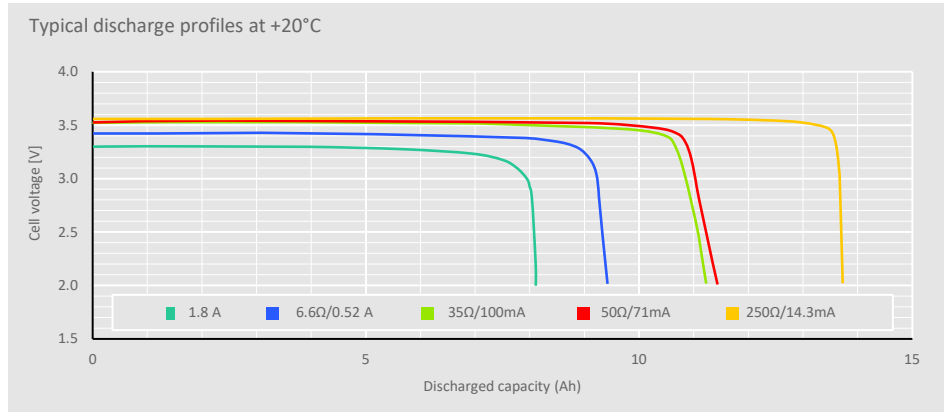


## LSH 20

### Primary Li-SOCl<sub>2</sub> cell



Dimensions in mm



#### Storage

- The storage area should be clean, cool (preferably not exceeding +30°C), dry and ventilated.

#### Warning

- Fire, explosion and severe burn hazard.
- Do not recharge, short circuit, crush, disassemble, heat above 100°C (212°F), incinerate, or expose contents to water.
- Do not solder directly to the cell (use tabbed cell versions instead).
- Do not remove the cells from their original packing before use.
- Do not store the cells in bulk to avoid accidental short circuiting.
- Do not mix new and used cells or cells from different origins.
- Mind the polarities of the cell.

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www.saft.com

**Saft, a subsidiary of TotalEnergies**  
S.A.S. au capital de 26 724 876 €  
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