Abriox
Remote monitoring & control for pipelines

# SUNBIRD CUBE
# Bond Interrupter

Quick Start Guide
&
Safety Information

www.abriox.com

## ABOUT THIS DOCUMENT

This document has been issued as a guide only; in all instances please refer to the full SUNBIRD CUBE Bond Interrupter Installation Instructions for further information.

## HOW TO OBTAIN FULL INSTALLATION INSTRUCTIONS

1) Go to www.abriox.com and click the Customer Portal link under the Support menu located at the top of the page.
2) Enter the Username and Password as shown on your Licence Certificate.
3) Click the link for the SUNBIRD CUBE Bond Interrupter and download the required files for viewing online or for printing at your own convenience.

**Note**

To download the full installation documentation you will need your Abriox-issued Username and Password; these can be found on the licence certificate issued.

If you do not have a copy of the licence certificate, please contact our technical support team by emailing support@abriox.com.

## DISCLAIMER

If this equipment is used in a manner not specified by Abriox, the protection provided by the equipment may be impaired. Please ensure you follow all guidance for safe and correct use of your equipment.

## SAFETY INFORMATION

Please ensure you are familiar with the safety regulations of your company and observe them at all times.

**General Safety Summary**

This document contains information and warnings that must be observed to keep the unit in a safe condition and ensure safe operation.

To use the unit correctly and safely, read and follow all precautions given.

Please ensure you fully understand all instructions throughout this document that relate to specific measurement functions.

In addition, please follow all generally accepted safety practices and procedures required when working with and around electricity.

**Safety Symbols**

The table below lists safety symbols that appear on the SUNBIRD CUBE Bond Interrupter and within this document.

| Symbol | Description |
|---|---|
| CAT IV | Installation Category (Overvoltage Category) IV |
| ⚠ | Risk of danger. Important information. See Installation Instructions. |
| ⚠ | Hazardous voltage. Voltage > 30V AC (42.4V peak) or 60V DC may be present |

**Maximum Input Voltage for Channels 1 and 2** ⚠

Channels 1 and 2 of the SUNBIRD CUBE Bond Interrupter have a maximum input voltage of ±50V AC (RMS).

**Maximum Input Voltage for Shunt Channel 3** ⚠

The Shunt channel of the SUNBIRD CUBE Bond Interrupter provides readings up to 100mV AC and ±100mV DC. The channel itself should not be exposed to voltages greater than ±1V peak. Voltages greater than this will cause the channel input protection to activate which can only protect the unit for a limited period of time.

**Danger of Electric Shock** ⚠

When using the SUNBIRD CUBE Bond Interrupter to monitor voltages greater than 30V AC, care should be taken as there is a danger of electric shock.

**Channel Input Protection** ⚠

Channels 1, 2 and 3 have CAT IV surge protection at their rated input voltage ranges.

**Battery Replacement**

The SUNBIRD CUBE Bond Interrupter uses a SUNBIRD battery pack and is specific to the product. Battery packs can be replaced. Please contact Abriox to order replacements.

**WEEE Directive**

This symbol indicates that this product is not to be disposed of with your household waste, according to the WEEE Directive (2002/96/EC) and your national law. This product should be handed over to a designated collection point, e.g., on an authorised one-for-one basis when you buy a new similar product or to an authorised collection site for recycling waste electrical and electronic equipment (EEE).

Improper handling of this type of waste could have a possible negative impact on the environment and human health due to potentially hazardous substances that are generally associated with EEE. At the same time, your cooperation in the correct disposal of this product will contribute to the effective usage of natural resources. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, waste authority, approved WEEE scheme or your household waste disposal service.

**Batteries Directive—Information for Users**

In the European Union (EU) this symbol indicates that the batteries in this product should be collected separately and not be disposed of with household waste. Substances in batteries can have a potential negative impact on health and environment and you have a role in recycling waste batteries thus contributing to the protection, preservation and improvement of the quality of the environment.

## COMPLIANCE

**Declaration of Conformity** CE

This product is CE marked which means that Abriox declares that the product or equipment complies with all applicable European Directives. A copy of the Certificate of Conformity can be obtained from Abriox.

**FCC Rules** FC

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 B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

i) Reorient or relocate the receiving antenna

ii) Increase the separation between the equipment and receiver

Do not make any changes or modifications to the equipment unless otherwise specified in the manual. If such changes or modifications should be made, you could be required to stop operation of the equipment.

**UK Declaration of Conformity** UKCA

This product is UKCA marked which means that Abriox declares that the product or equipment complies with all applicable UK Directives. A copy of the Declaration of Conformity can be obtained from Abriox.

**INSTALLATION INSTRUCTIONS**

This document has been issued as a guide only; in all instances please refer to the full SUNBIRD CUBE Bond Interrupter Installation Instructions for further information.

## Step 1 - Software Check

**iCPSM4*** users, please ensure you have received your Licence Certificate which details your HQ number, username and password.

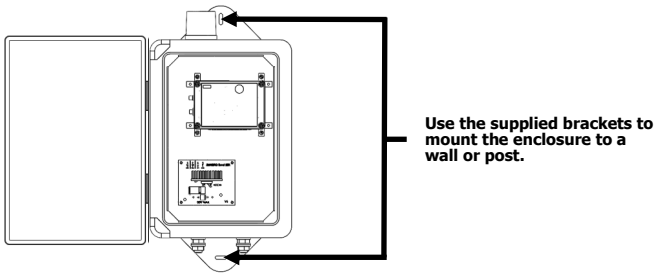
*Please note, SUNBIRD CUBE Bond Interrupter is only compatible with **iCPSM4**.

## Step 2 - Gather Equipment for Installation

To install the SUNBIRD CUBE Bond Interrupter you will need:

- Shunt - of correct value
- A magnet - to activate the SUNBIRD CUBE Bond Interrupter
- Consumables - for making the connections at the bond
- Multimeter - for confirming the voltage and current readings
- Cell/tablet/laptop - for configuring the SUNBIRD CUBE Bond Interrupter on iCPSM4
- SUNBIRD CUBE Bond Interrupter Installation Instructions

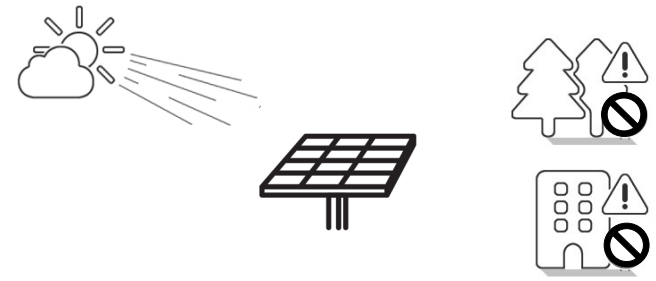
## Step 3 - Physical Installation




Locate a suitable position for the SUNBIRD CUBE Bond Interrupter and any accessories to be installed. Each unit is supplied with brackets that allow it to be mounted to a wall or post.

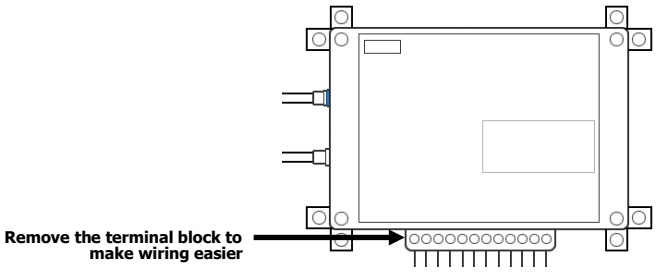
The SUNBIRD CUBE Bond Interrupter requires a clear view of the sky and requires being mounted outside any metal enclosures. Ideally, the unit should be mounted as high up as possible in order to gain the best GPS signals.

## Step 4 - Mount Solar Panel



Solar Panel Orientation—The solar panel must be turned towards the terrestrial equator (facing the south in the northern hemisphere) so that during the day, its orientation allows the panel to catch the greatest amount of solar radiation possible. Do not install the solar panel in shade, under foliage or next to buildings as this will hinder power generation.

## Step 5 - Make Connections

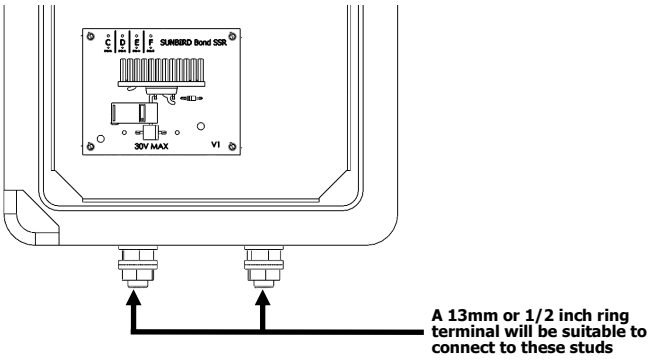



To aid installation, the terminal block may be removed by gently pulling from the SUNBIRD CUBE Bond Interrupter.

Make the connections to the SUNBIRD CUBE Bond Interrupter as required. The unit has up to 12 connections (labelled A to L) and are briefly described on the front label.

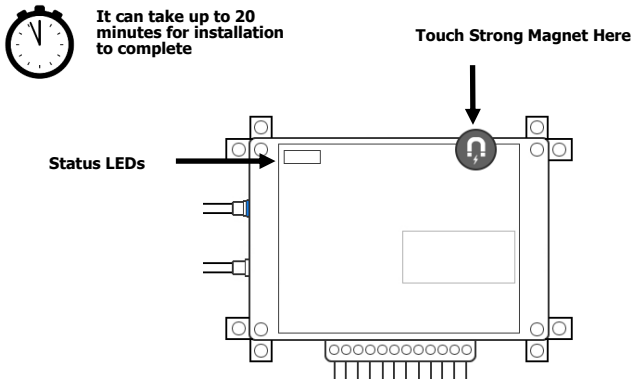
Please refer to the full Installation Instructions for further information.

## Step 6 - Connect Bond Inputs




The inputs for the Bond Interrupter relay is made via the two brass studs, located at the bottom of the enclosure. Use appropriately rated wires with ring terminals from the point to be interrupted and connect one to each stud. **These terminals are not polarised.**

## Step 7 - Activation

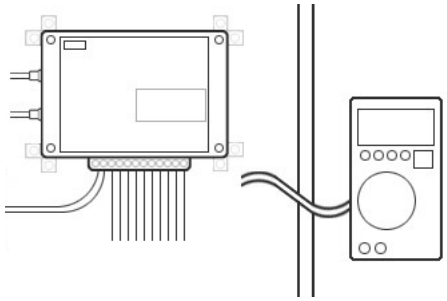



Activate the SUNBIRD CUBE Bond Interrupter by touching a strong magnet on top of the Reset switch where indicated on the label, all 3 LEDs (Green, Amber and Red) will illuminate whilst the magnet is held in place. Once the LEDs have illuminated, remove the magnet to start the installation process.

The **Status LEDs** on the SUNBIRD CUBE Bond Interrupter will flash to indicate the installation status. The LEDs will flash between Amber and Green to show installation/communications are taking place. Once the unit is flashing green (1 green flash every 2 seconds), communications have been established and installation has been completed.

The Status LEDs can indicate various statuses, please refer to the full Installation Instructions for further information.

## Step 8 - Take a Reading (Optional)



Take a reading on the terminals using a multimeter and compare the measurements against the readings given by the SUNBIRD CUBE Bond Interrupter in the iCPSM4 software.

To check the measurements taken by the SUNBIRD CUBE Bond Interrupter, open iCPSM4 via a browser on your phone/tablet/laptop etc. Once you are logged in, click on "New Installations" from the menu on the left and locate your unit by matching the serial number on the front of the unit.

Check the reading values match those given by the multimeter. If any of the readings are inconsistent with the multimeter, check the wiring.

## Step 9 - Post Site Configuration and Installation

iCPSM
INTERNET-BASED CATHODIC PROTECTION SYSTEM MANAGER

Once installed you will need to assign the SUNBIRD CUBE Bond Interrupter to a Pipeline and Location, you will also need enter the shunt value in the iCPSM4 software.

The software also allows you to specify the alert thresholds, measurement time and time zone.

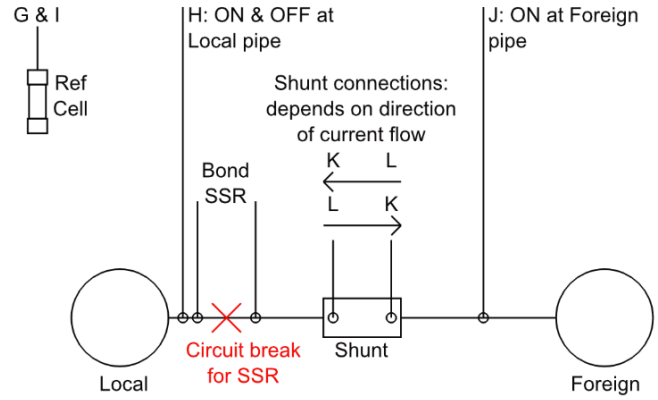
Further configuration and operational features can be carried out directly via the software. Please refer to the full SUNBIRD CUBE Bond Interrupter Installation Instructions for further information.

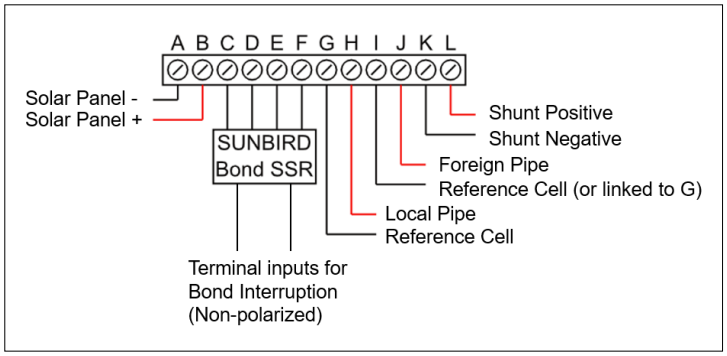
## Installation Examples

The following examples are shown only as a guide

Once the physical installation is complete, you will need to set up the Channel Configuration (see the relevant iCPSM4 Channel Configuration table in the following installation instructions) in iCPSM4.

## SUNBIRD CUBE Bond Interrupter: Single Bond Interruption with One Reference Cell, One Shunt Channel




| iCPSM4 Channel Configuration | |
|---|---|
| **Channel Name** | **Channel Label** |
| Input 1 ON DC | Pipe 1 ON DC (mV) |
| Input 1 ON AC | Pipe 1 ON AC (V) |
| Input 1 OFF DC | OFF Potential (mV) |
| Input 1 OFF AC | Unused |
| Input 2 DC | Pipe 2 ON DC (mV) |
| Input 2 AC | Pipe 2 ON AC (V) |
| Input 3 (Current) DC | Bond Current (mA) |
| Input 3 (Current) AC | Bond Current AC (mA) |

## LED Descriptions

The Status LEDs on the SUNBIRD SP TEST POST MONITOR describe the current status and can indicate any problems.



Red LED



Amber LED



Green LED

## During Installation

| LED Colour | Sequence | Description |
|---|---|---|
|  | All LEDs Illuminated | Magnet is present on Reset Switch |
|  | Amber/Green Alternating | Connecting to the network and installing |

## During Normal Operation

| | | |
|---|---|---|
|  | 1 flash every 2 seconds | Everything is OK |
|  | 2 flashes every 2 seconds | Temporary loss of cellular communications |
|  | 3 flashes every 2 seconds | Temporary loss of GPS communications |
|  | 1 flash every 2 seconds | Low battery or battery not connected |
|  | 2 flashes every 2 seconds | Low battery and temporary loss of cellular communications |
|  | 3 flashes every 2 seconds | Low battery and temporary loss of GPS communications |
|  | 4 flashes every 2 seconds | No SIM/SIM error |
|  | 5 flashes every 2 seconds | Installation failure (continuous AMBER LED flashing) |
|  | 1 flash every 2 seconds | Invalid configuration (serial number, apn, server, etc.). Contact Abriox |
|  | 2 flashes every 2 seconds | Other fault (e.g. no modem comms, no GPS comms). Contact Abriox |