# iQ Smoke Detector.

## Datasheet

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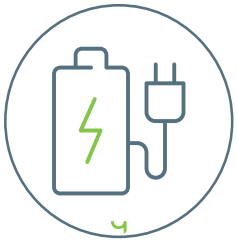
yobiq



LoRa Alliance® Member

# Application.

- The iQ Smoke Detector by Yobiiq is the worlds first LoRaWAN® connected smoke detector to work on 230V with a backup battery and wired interconnection capability.
- The iQ Smoke Detector is designed to detect smoke within indoor environments.
- The iQ Smoke Detector allows for annual inspections to be done remotely via LoRaWAN commands, eliminating the need for an on-site inspection.
- The LoRaWAN® module with a very long data transmission range allows the device to be used virtually anywhere.



# Components.

- The iQ Smoke Detector comes with a loud alarm with a minimum of 85dB(A)
- A built-in, replaceable long-life battery with a service life of up-to 10 years.
- The Smoke Detector is equipped with a big Test button to hush the alarms.
- The iQ Smoke Detector is approved according to device standard EN-14604
- The device consists out of a Microcontroller with LoRaWAN® and Bluetooth Low Energy communication modules.

# Device Operation.

- The iQ Smoke Detector requires an operational LoRaWAN® network to transmit data, however it can operate as a stand-alone device as well.
- The device is powered by 230V, an internal backup battery is used to power the device when 230V is not available.
- Configuration of the device is done using mobile app or LoRaWAN downlinks.
- The iQ Smoke Detector transmits data over more then 2 km in an open space with a medium density of buildings.
- It's recommended to add the device to the Yobi Hub, which allows detailed and easy monitoring of the data transmitted by the device.

# Advantages.

- Because of it's ability to operate stand alone or over the LoRaWAN network you save on cabling costs.
- Get low-battery alarms pushed over LoRaWAN so you can prevent building occupants getting
- disturbed by low battery warning from the Smoke Detector.
- You can replace your existing wired smoke detectors which are interconnected by a wire with our Smoke Detector without making any changes to the installation.
- Conversion of existing installations is not required because of the LoRaWAN module.
- Remotely test and log the (mandatory) smoke detectors without having to physically locating them and pushing the test button.
- The device is an EN14604 certified Smoke Detector.
- The data transmission is pseudo-random to avoid radio collisions.
- The device can be used on Private or Public Networks and works with the majority of the network servers and visualization platforms.

# Mounting Advice.

The installation and assembly of electrical equipment should only be performed by authorized personnel.

The product should only be used for the intended application. Unauthorised modifications are prohibited! The product must not be used in relation with any equipment that in case of a failure may threaten, directly or indirectly, human health or life or result in danger to human beings, animals or assets.
Ensure all power is disconnected before installing.
Do not connect to live/operating equipment.

**CAUTION!**
**Risk of electric shock due to live components within the enclosure.**

Please comply with:

- Local laws, health & safety regulations, technical standards and regulations
- Condition of the device at the time of installation, to ensure safe installation
- This data sheet and installation manual

# Technical Details.

## General System Parameters.

| | |
|---|---|
| **Power Supply** | 230VAC or Built-in battery |
| **Ambient condition** | 0..60°C, max. 85% rH non-condensing |
| **Enclosure** | PC, UL94-V0 |
| **Protection** | IP20 according to EN60529 |
| **Size** | 120 mm - round |
| **Weight** | 102g |
| **Mounting** | Flush mounting |
| **Control functions** | - |
| **Functions** | - |
| **Display** | - |
| **Connection electrical** | Terminal block, max 2,5mm2 |

## Battery.

| | |
|---|---|
| **Type** | Lithium CR123A |
| **Lifetime** | 10 years |
| **Operational lifetime** | Mains powered : 10 years<br>Battery powered : 1 day to 4 years, depending on configuration, environment and network strength. |

## Regulatory Compliance.

| | |
|---|---|
| **Smoke Detection** | EN 14604:2005/AC:2008 |
| **CE** | EN 300 328 V2.2.2:2019<br>EN 301 489-1 V2.2.1:2019<br>EN 301 489-17 V3.2.0:2017<br>EN 61000-6-3:2007+A1<br>EN 50130-4:2011<br>EN 62311:2008 |

## Instructions for correct assembly.

**The Smoke Detector package will always contain a document with instructions for correct assembly, this document should always be followed when installating the Smoke Detector.**

## Recommended Locations.

- Locate the first alarm in the immediate area of the sleeping rooms. Try to monitor the exit path as the sleeping rooms are usually farthest from the exit. If more than one sleeping area exists, locate additional alarms in each sleeping area.
- Locate additional alarms to monitor any stairway as stairways act like chimneys for smoke and heat.
- Locate at least one alarm on every floor level.
- Locate an alarm in every sleeping room.
- Locate an alarm in every room where electrical appliances are operated (i.e. portable heaters or humidifiers).
- Locate an alarm in every room where someone sleeps with the door closed. The closed door may prevent an alarm not located in that room from waking the sleeper.
- Smoke, heat, and combustion products rise to the ceiling and spread horizontally. Mounting the smoke alarm on the ceiling in the center of the room places it closest to all points in the room. Ceiling mounting is preferred in ordinary residential construction.
- When mounting an alarm on the ceiling, locate it at a minimum of 10 cm from the side wall. (see Figure 1).
- When mounting the alarm on the wall, use an inside wall with the top edge of the alarm at a minimum of 10 cm and a maximum of 40 cm below the ceiling. (see Image 1).
- In homes that are not well insulated, extreme heat or cold can be transferred from the outside to the inside through poorly insulated walls and roof. This may create a thermal barrier which can prevent the smoke from reaching an alarm mounted on the ceiling. If you are not sure about the insulation in your home, or if you notice that the outer walls and ceiling are either hot or cold, install the alarm on an inside wall. In such homes, install the smoke alarm with the top edge of the alarm at a minimum of 10 cm and a maximum of 40 cm below the ceiling (see Image 1).
- Put smoke alarms at both ends of a bedroom hallway or large room if the hallway or room is more than 10 m long.
- Install Smoke Alarms on sloped, peaked or cathedral ceilings at or within 0.9 m of the highest point (measured horizontally). Smoke alarms in rooms with ceiling slopes greater than .3 m in 2.4 m horizontally shall be located on the high side of the room. A row of detectors shall be spaced and located within 0.9 m of the peak of the ceiling measured horizontally (see Image 3).

- Install Smoke Alarms on tray-shaped ceilings (coffered ceilings) on the highest portion of the ceiling or on the sloped portion of the ceiling within 305mm vertically down from the highest point (see Image 3).

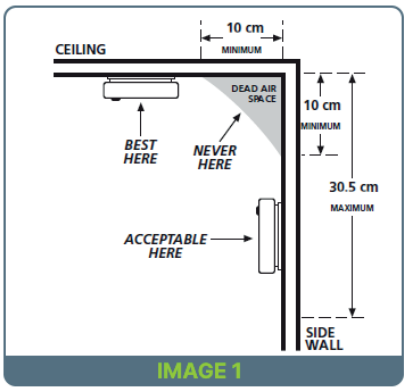


IMAGE 1

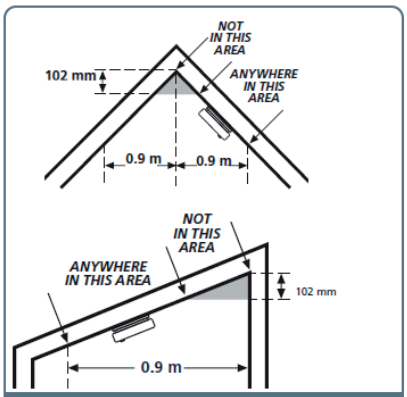


IMAGE 3

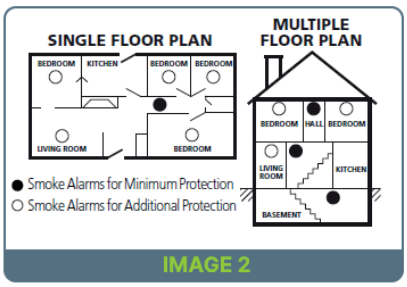


IMAGE 2

## Locations to avoid.

- In the garage. Products of combustion are present when you start your motor vehicle.
- Less than 10 cm from the peak of an “A” frame type ceiling.
- In an area where the temperature may fall below 0°C or rise above 40°C , such as garages and unfinished attics; this should include electrical boxes exposed to these environments.
- In dusty areas. Dust particles may cause nuisance alarm or failure to alarm.
- In very humid areas. Moisture or steam can cause nuisance alarms.
- In areas where the Relative Humidity (RH) is above 90%.
- In insect-infested areas.
- Smoke alarms should not be installed within 90 cm of the following:
  - The door to a kitchen, the door to a bathroom containing a tub or shower.
  - Forced air supply ducts used for heating or cooling, ceiling or whole house ventilating fans, or other high air flowareas.
  - Kitchens. Normal cooking may cause nuisance alarms.
  - Near fluorescent lights. Electronic “noise” may cause nuisance alarms.

## Installation.

After selecting the proper smoke alarm location as described above;

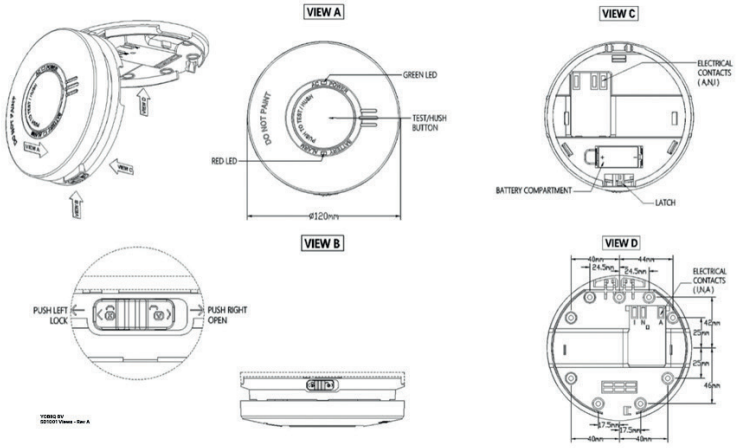
- Strip off the wires according.
- Connect the wires to the correct terminals on the detector base and ensure that the terminal screws are fully tightened.
- Close the terminal flap cover to avoid contact with the live terminals and risk of electric shock in case of carelessness.
- Attach the detector base to the ceiling or wall. Use the screws and wall plugs provided to secure the detector base.
- Close the smoke alarm base after installing a battery or removing the battery cover. Note: the detector base will only close if a battery is present. Do not attempt to close the detector base unless a battery is installed!
- Power on mains and check that the Green LED lights up to indicate Main Power present.

**Always use insulated wiring as per your local regulation, supported diameter is between 0,75mm2 and 2,5 mm²**

**When testing the alarm, always keep a safe distance to the device. The detector is equiped with a loud alarm (~90 dB)**

Installation is not complete until both LEDs are functioning correctly and the alarm has been checked for correct operation.

## Dimensions.




## Order Information.

| | |
|---|---|
| **iQ SD1001 - LoRaWAN 868 (EU)** | 1002015 |

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