

Battery Free Wireless Light Switch

The switch enables the realisation of energy harvesting wireless switches for EnOcean systems communicating based on the BLE radio standard.

The switch is mechanically compatible with the established PTM 21x form factor enabling quick integration into a wide range of designs.

Key applications are wall-mounted or portable switches either with up to two rockers or up to four push buttons.

The switch contains an electro-dynamic energy transducer actuated by a bow which can be pushed from outside the module on the left or right by an appropriate pushbutton or switch rocker.

When the energy bow is pushed down, electrical energy is created and a set of BLE advertising frames is transmitted.

These advertising frames transmit the operating status of all four contact nipples at the moment when the energy bow was pushed or released.



Features overview

The switch transmitter modules are self-powered (no batteries) and fully maintenance-free. They can therefore be used in all environments including locations that are difficult to reach or within hermetically sealed housings.

The switch's radio telegrams are protected with AES-128 (CBC) security based on a device-unique private key.

The switch provides an NFC interface according to ISO 14443 for configuration.



Antenna

Integrated PCB antenna

Radio Standard

2.4GHz / BLE (Advertising Mode)

Radio Channel	BLE Channels 37, 38 and 39 (Advertising Channels)
Device Identification	Individual 48 Bit Device ID (factory programmed)
Device Configuration	NFC (ISO 14443)
Security	AES128 (CBC) authentication with Sequence Counter
Transmission Range	typ. 100 m free field / 10 m indoor
Power Supply	Integrated Kinetic Energy Harvester
Energy Bow Travel / Force	1.8 mm / typ. 10 N (at room temperature)
Button Inputs	Up to four buttons or two rockers
Number of operations at 25°C	typ. 100.000 (tested according to EN 60669 / VDE 0632)
Module Dimensions	86.0 x 86.0 x 12.91 mm
Operating Temperature	-25°C ... 65°C
Planned Radio Certifications	R&TTE (Europe) / FCC (US) / IC (Canada)