

## LoRaWAN™ USB DONGLE



The LoRaWAN™ USB Dongle allows you to transform a PC, a box or any embedded system with a USB 2.0 port into a LoRaWAN server. It is a quick and easy way to access data from LoRaWAN sensors from the nkeWatteco range (or from other manufacturers, after validation tests).

### APPLICATIONS

- LoRa private network
  - provisioning/de-provisioning of sensors in a private network with security key management,
  - possibility to send or read operating parameters for each sensor,
  - data exchange in request/response or notification mode (sensor-initiated)

### BENEFITS & FEATURES

- LoRaWAN protocol class A and C
- USB 2.0 interface: Windows and Linux compatible
- Management and coordination: up to 50 LoRaWAN™ sensors
- Deportable antenna
- Reach:
  - ✓ > 2km in open field,
  - ✓ Up to 8 -10 floors in a building
- Self-powered from USB port

### CERTIFICATION

- CE, RoHS



The LoRaWAN™ Dongle is a small and economical USB flash drive. The dongle supports the basic functionalities of a LoRaWAN server, limited to "Confirmed Up" frames. It manages data exchanges between a LoRaWan environment and a PC, a Box or any embedded environment with a USB 2.0 port.

It is compatible with the standard USB/serial FTDI drivers available in Windows and Linux environments. Once connected to a host, the Dongle can be controlled via UART by a set of AT commands. The main functions available are:

- provisioning/de-provisioning of sensors in a private network with security key management,
- possibility to send or read operating parameters for each sensor,
- data exchange in request/response or notification mode (sensor-initiated)

The Dongle goes up via the serial link, all the frames coming from the provisioned sensors. The USB Dongle can also be set to upload all the frames heard.

The frames uploaded by the Dongle are decrypted and made available on the serial link. The data format corresponds to the format used by the sensor. ZCL " for nkeWatteco sensors.

The Dongle is designed to operate with class A or class C sensors and supports provisioning by ABP or OTAA. All nkeWatteco sensors are thus compatible (other manufacturers not tested to date but potentially possible).

The association of a sensor is simply carried out by declaring its keys and identifiers.

The USB Dongle has a radiofrequency range allowing to communicate with sensors located more than 2km away in open field as well as inside a building of 8 to 10 floors.

Each USB Dongle has a unique identification code visible on the product identification label.




The USB Dongle is designed to operate indoors away from water splashes and dust. The operating range is from 0 to +45°C. The housing is UL94-V0 HB flame retardant.

### NKE WATTECO, YOUR PARTNER IN SMART SENSORS & ACTUATORS

nke Watteco is a leading European designer and manufacturer of intelligent radio frequency sensors and actuators as well as multi-protocol remote reading and data collection solutions.

nke Watteco is a member of the LoRa® Alliance

## TECHNICAL INFORMATION

RADIO FREQUENCY	
Frequency (MHz)	863-870
Transmitted power (dBm)	+14
Sensitivity (dBm)	-128
Scope	Up to 8 - 10 storeys inside a building >2km in open field
LoRaWAN	
Protocols	LoRaWAN™, Class A and C 6LoWPAN / UDP (available on port 6)
Spreading factor	SF12 (default), SF11, SF10 - to be selected according to usage. Reconfigurable
Listening frequencies (MHz)	868.1; 868.3; 868.5. - automatic frequency hopping Reconfigurable
Max. number of connectable sensors	Up to 50, based on one report from each sensor per hour.
Method of activating sensors	Activation by Personalization (ABP) ou Over-The-Air Activation (OTAA)
Data Encryption	AES128
Frame format	ZCL-like for nkeWatteco Sensors
EQUIPMENT	
RF transceiver	SEMTECH SX1272
USB/CDC	FT232X USB : PID/VID: 0x0403/0x6015
Microcontroller	MSP 430
POWER SUPPLY	
Voltage	5V - Self-powered via USB port
Consumption	40mW
INTERFACE	
USB/CDC	TTL serial link: 115 200 bauds / 8bits / 1StopBit / No parity / No flow control USB link; PID/VID: 0x0403/0x6015 (component FT232x)
UART/TTL	optional
Antenna	On-board patch antenna
UFL	Possibility to connect an external antenna
LED	Sensor provisioning/de-provisioning Sending or reading operating parameters for each sensor, Exchange of data
BOX	
non-flammable	UL94-V0 HB
ENVIRONMENT	
Operating temperature (°C)	0 / +45
Storage: Temperature (°C)	-10 / +60
STANDARDS & REGULATIONS	
EN, 61000-4-2 EN 300-220-1 V2-4-1, EN 301 489 V1-6-1 CE, RoHS	
  	

## PRODUCT NUMBER

REFERENCE	DESCRIPTION
50-70-041	LoRaWAN™ USB DONGLE