thinxtra
Empowering Internet of Things

sigfox operator

XKIT INSTRUCTION
INSTALLATION GUIDE

March 2017

www.thinxtra.com/xkit

XKIT COMPONENTS

HARDWARE ELEMENTS
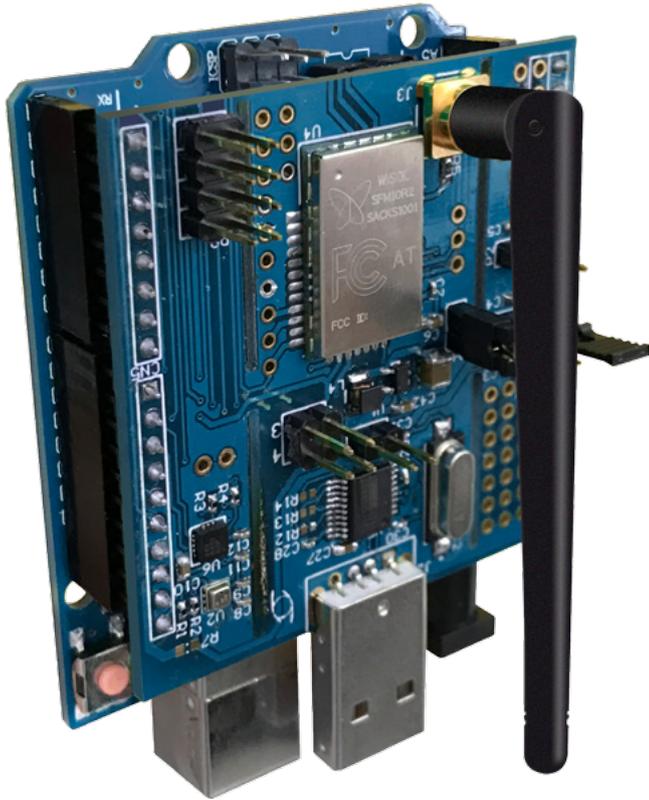
Arduino Board
x1

Xkit
x1

Antenna
x1

Battery Holder
x1

Jumper
x7

USB Cable
x1

CONTENT

HARDWARE CONFIGURATIONS
- Power from USB port
- Power from Arduino
- Power from a 9V battery

SUBSCRIBE XKIT

RUN THE DEMO APPLICATION

HARDWARE CONFIGURATIONS

Xkit supports various sources of power supplies such as 9V, 5V and 3.3V by properly setting the jumpers on Xkit. Deciding your power supply, you can configure the jumpers on the Xkit.

Power From USB Port

i. Put jumpers on P8, P10 (pins 1-2 and 3-4) and P4.
ii. Plug the Xkit to a USB port.
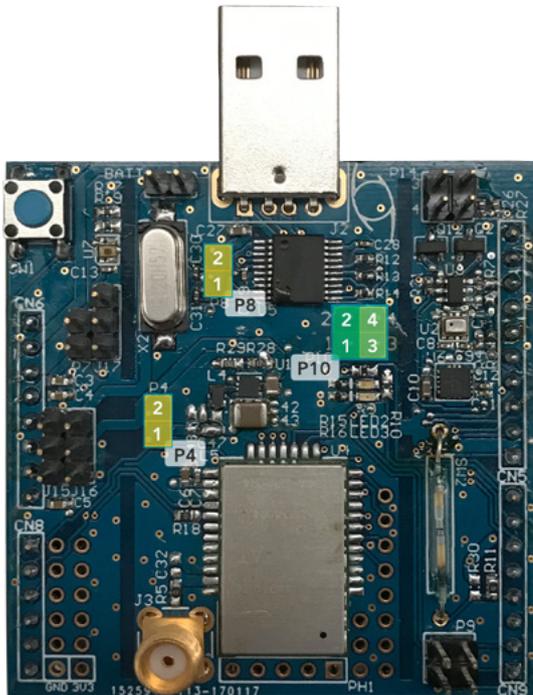
Power From Arduino

i. Put jumpers on J17 (pins 1-2), J15 (pins 2-3), P4, P14 (pins 1-2 and 3-4) and P9 (pins 1-2 and 3-4).

ii. Plug the Xkit to Arduino.
iii. Plug the Arduino board to PC with USB cable supplied.
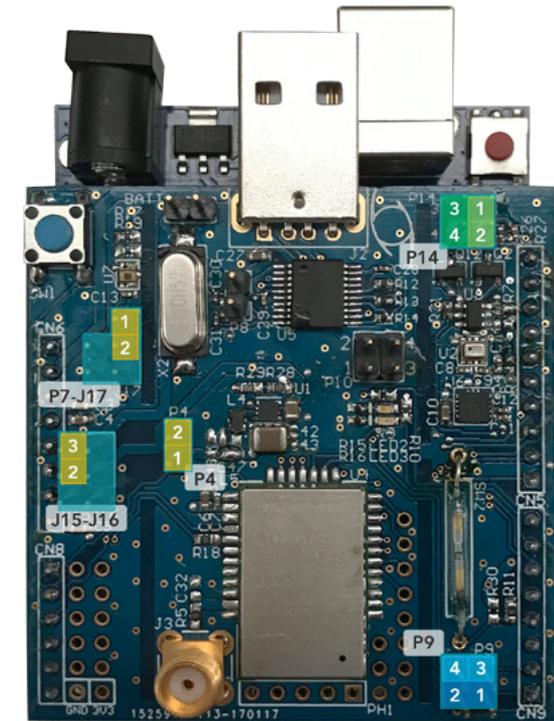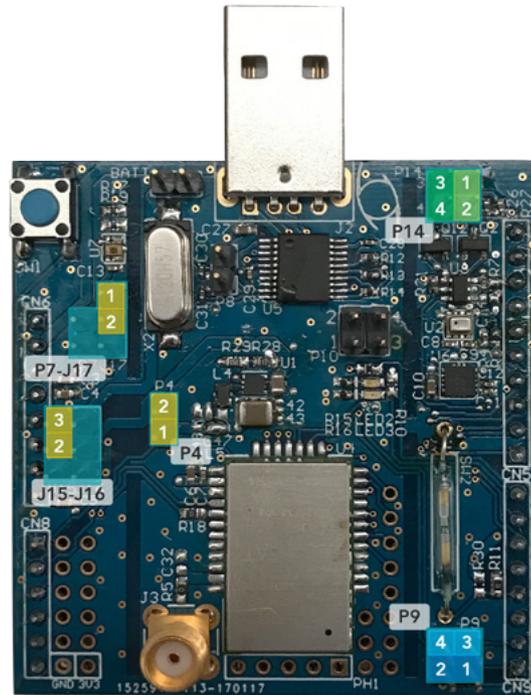
HARDWARE CONFIGURATIONS

Power From a 9v Battery

i. Put jumpers on J17 (pins 1-2), J15 (pins 1-2), J16 (pin2-3), P4, P14 (pins 1-2 and 3-4) and P9 (pins 1-2 and 3-4).

ii. Plug the Xkit to Arduino.
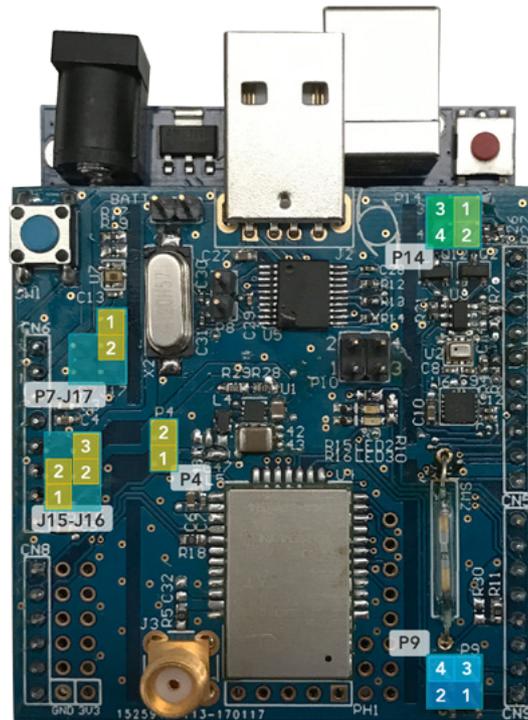
iii. Connect the battery holder to BATT marking (please be aware of the polarity: + and - signs).
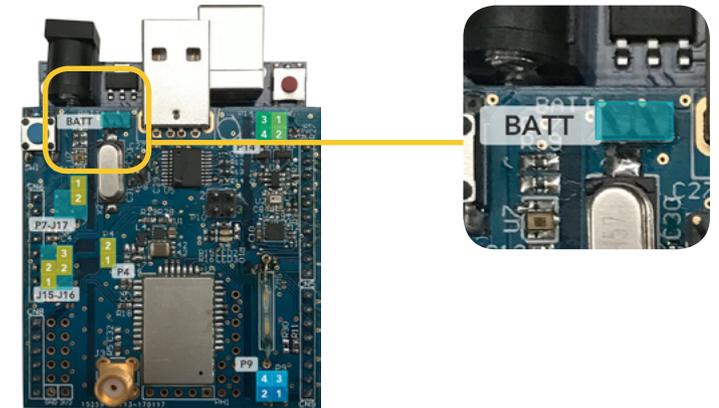
IMPORTANT NOTE
Do not put any jumper on J15 (pins 2-3) while powering from a 9V battery or you will damage the board.

HARDWARE CONFIGURATIONS
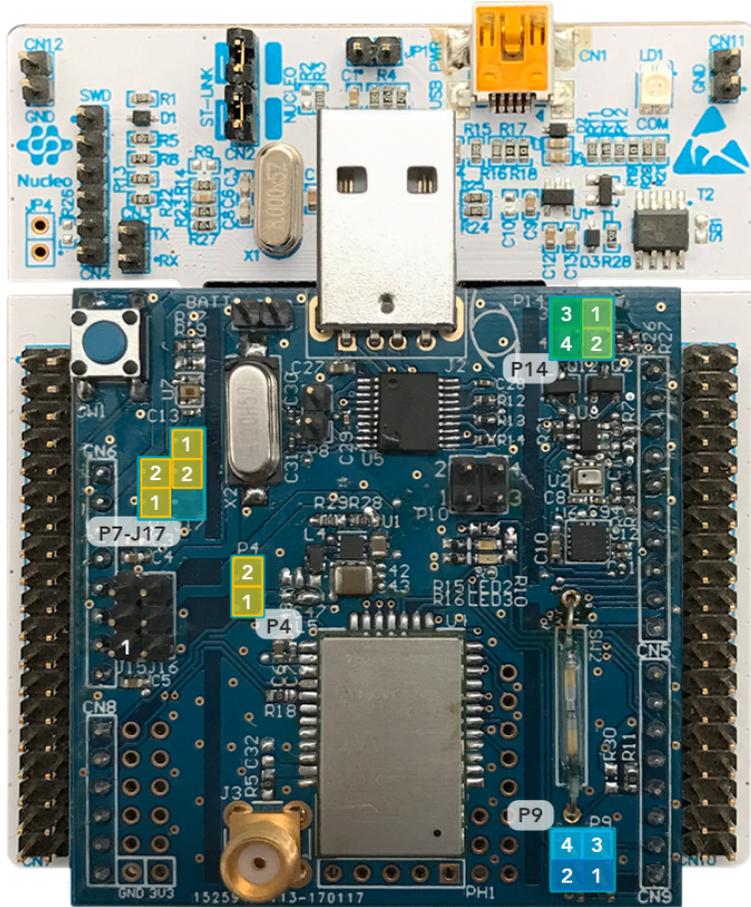
Power from STM Nucleo Board

i.   Put Jumpers on P7 (1-2), J17(1-2), P4, P14(1-2 & 3-4), P9 (1-2 & 3-4)

ii.   Plug the Xkit to the STM Nucleo Board

SUBSCRIBE XKIT ON SIGFOX BACKEND

STEP 1: Go to https://backend.sigfox.com/activate

STEP 2: Choose Thinxtra logo

STEP 3: Choose your country

STEP 4: Enter device information
(Sigfox ID and PAC can be found on the
package)

STEP 5: Fill in account details.

STEP 6: Click Subscribe button.
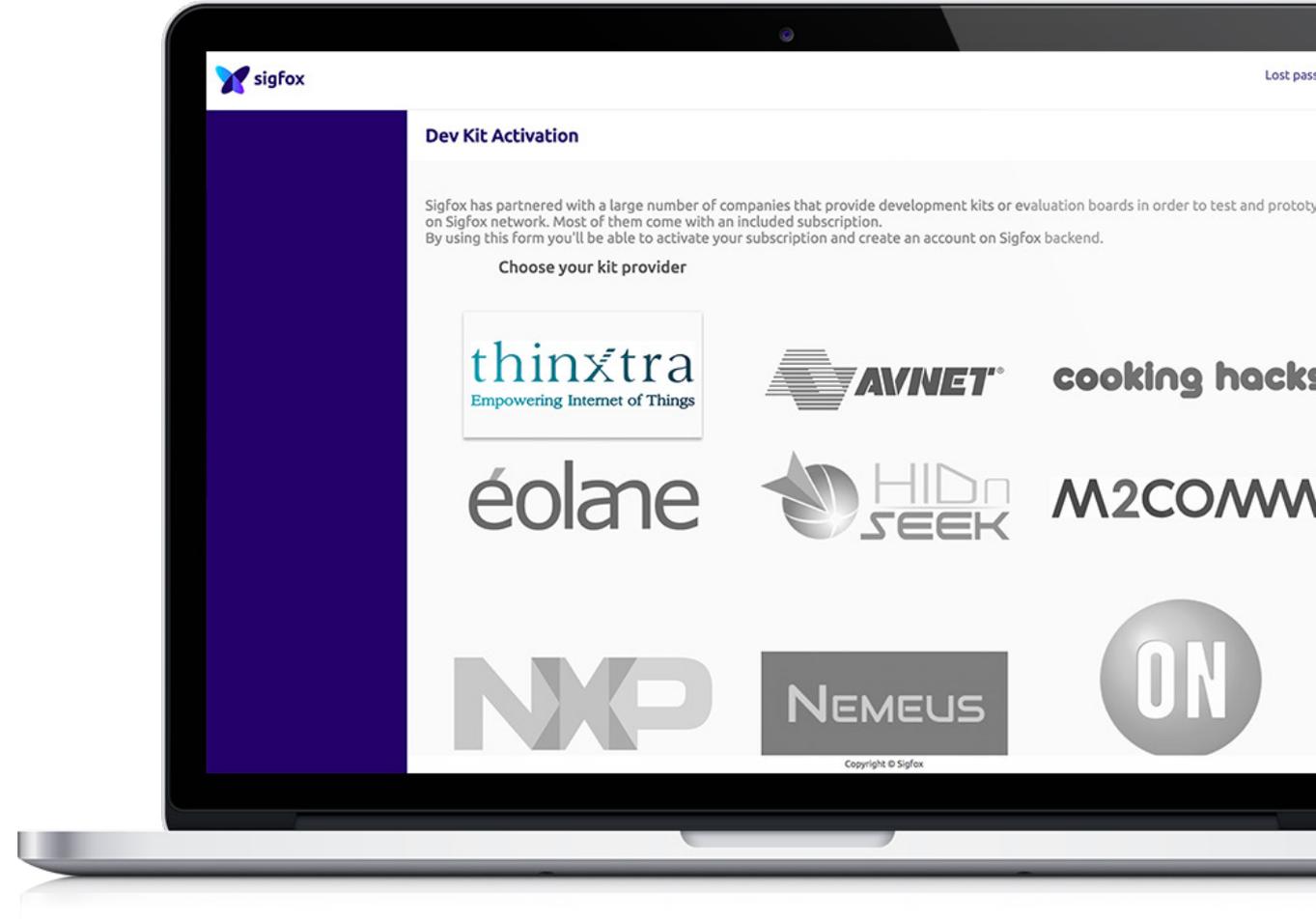
RUN THE DEMO APPLICATION

How To Run DEMO App

i.   To run the DEMO application, just plug the Xkit to the Arduino board.

ii.   Connect the external antenna to Xkit.

iii.   Configure the jumpers on Xkit instructed in Section 1.b (if power from Arduino) or Section 1.c (if power from battery).

iv.   The DEMO application is now running.
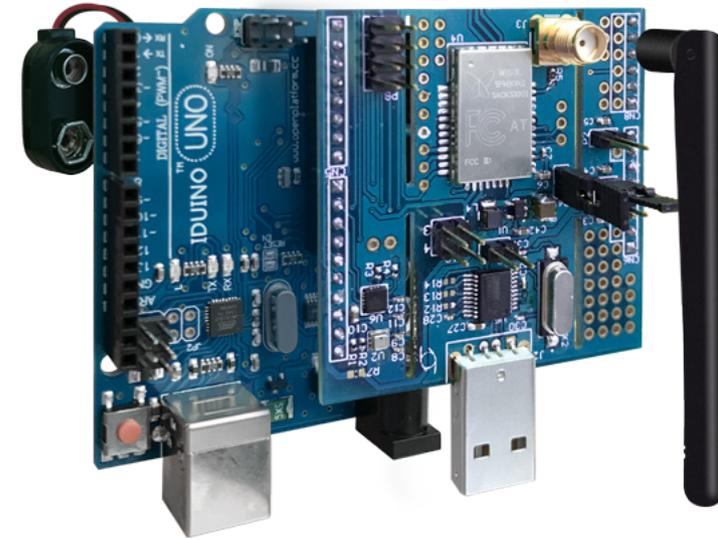
Explain Function Of DEMO App

The Arduino board supplied with the Xkit is pre-flashed with a DEMO application that send a message containing the temperature value, the output voltage from the photovoltaic sensor, the pressure value and the acceleration every 10 minutes.

	Integer 2 bytes		Integer 2 bytes		Integer 2 bytes		Signed Integer 2 bytes		Signed Integer 2 bytes		Signed Integer 2 bytes	
Received frame on the backend	LSB	MSB	LSB	MSB	LSB	MSB	LSB	MSB	LSB	MSB	LSB	MSB
	TEMPERATURE		PRESSURE		PHOTO		X_Acc		Y_Acc		Z_Acc	
Actual measured value	Temperature/100 (^{o}C)		Pressure*3 (Pa)		Photo/1000 (V)		X_Acc/250 (g)		Y_Acc/250 (g)		Z_Acc/250 (g)	
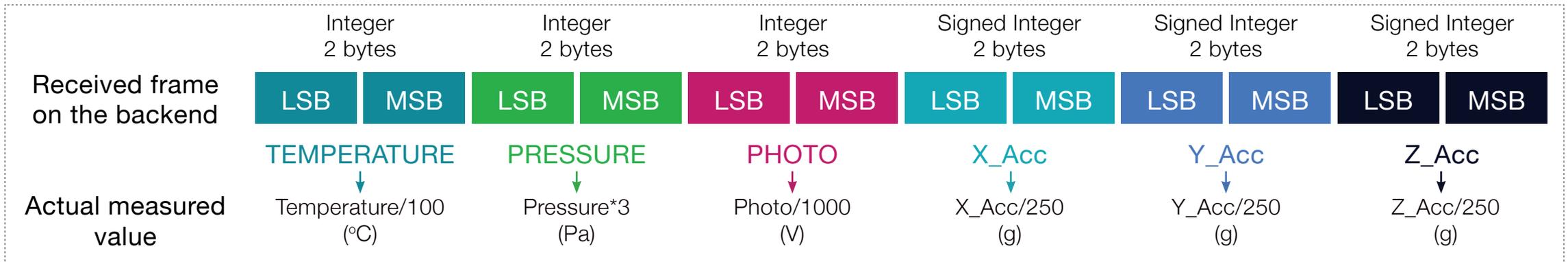
Convert the received values on the backend to the actual measured values

The same message will also be sent if a magnet is close to the reed switch or the button on Xkit is pressed.

RUN THE DEMO APPLICATION

How To See Message On Backend

STEP 1: Go to https://backend.sigfox.com/auth/login.

STEP 2: Log in with your account. (You should have an account on Sigfox backend after registering your device)

STEP 3: Click on Device tab on the top menu.

STEP 4: Enter your device ID and press enter.

STEP 5: Click on the device ID.

STEP 6: Click on the MESSAGES tab on the left side bar.
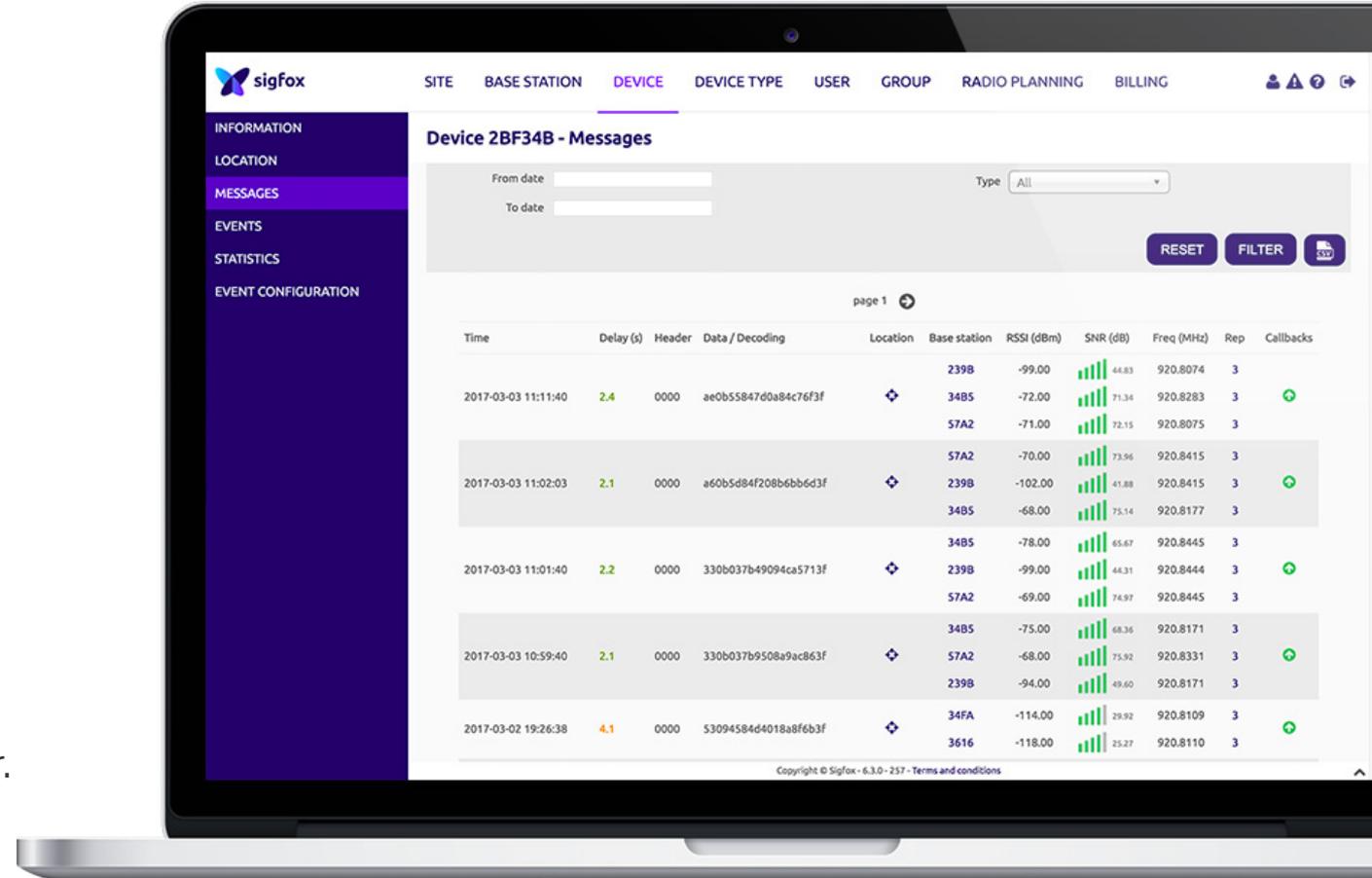
You may also want to set up a CALL BACK for your device.
Please choose your platform and follow the instructions at http://www.thinxtra.com/xkit/.

RUN THE DEMO APPLICATION

How To Understand Received Messages On Sigfox Backend

Since a payload length of a Sigfox message is only up to 12 bytes. The measured values (i.e., temperature, pressure, photo, acceleration) in the DEMO application are scaled and cast into a two-bytes integer.

To retrieve the original values, the received values from the Sigfox backend need to be rescaled as follows:

- Temperature is divided by 100.
- Pressure is multiplied by 3.
- Output voltage of the photovoltaic is divided by 1000.
- Acceleration in each dimension is divided by 250.

www.thinxtra.com/xkit

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