

IKS01A3 Intro

Last updated 9/8/22

IKS01A3

- IKS01A3 Expansion board
 - Motion MEMS and environmental sensor expansion board for STM32 Nucleo
 - Includes
 - Accelerometer
 - Accelerometer + Gyroscope
 - Magnetometer
 - Temperature Sensor
 - Humidity Sensor
 - Capacitive touch Sensor
 - Uses an Arduino connector
 - Uses an I2C interface for communications
 - Device write (setup)
 - Device read (measured values)

IKS01A3

- IKS01A3 MBED APIs
 - Motion MEMS and environmental sensor expansion board for STM32 Nucleo

Figure 1. X-NUCLEO-IKS01A3 expansion board

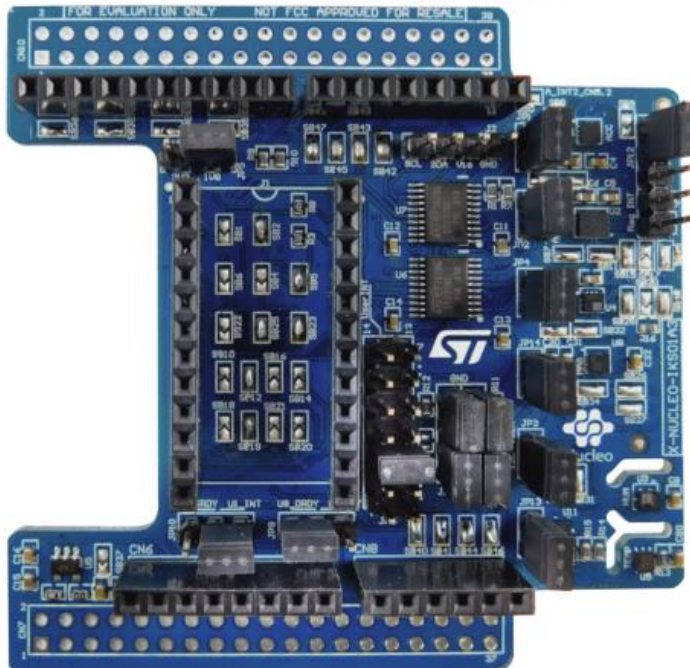
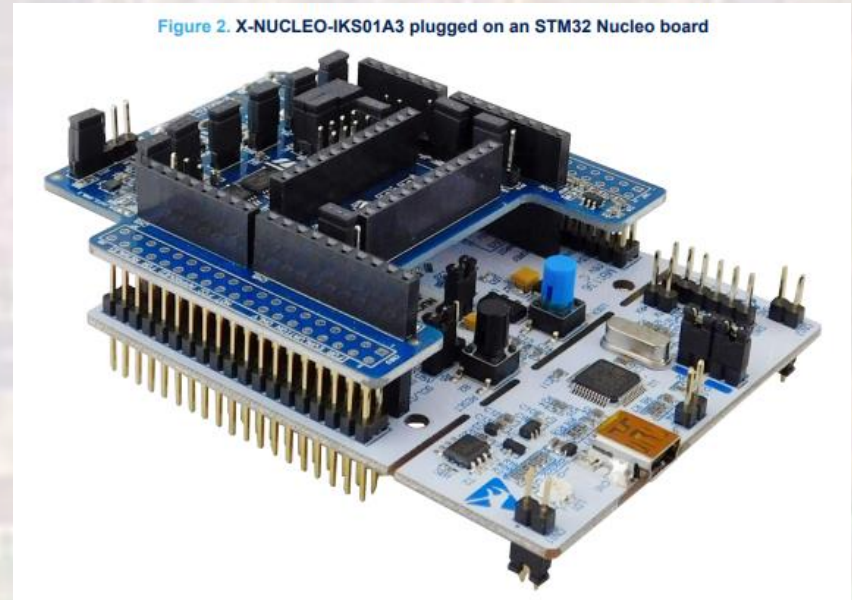
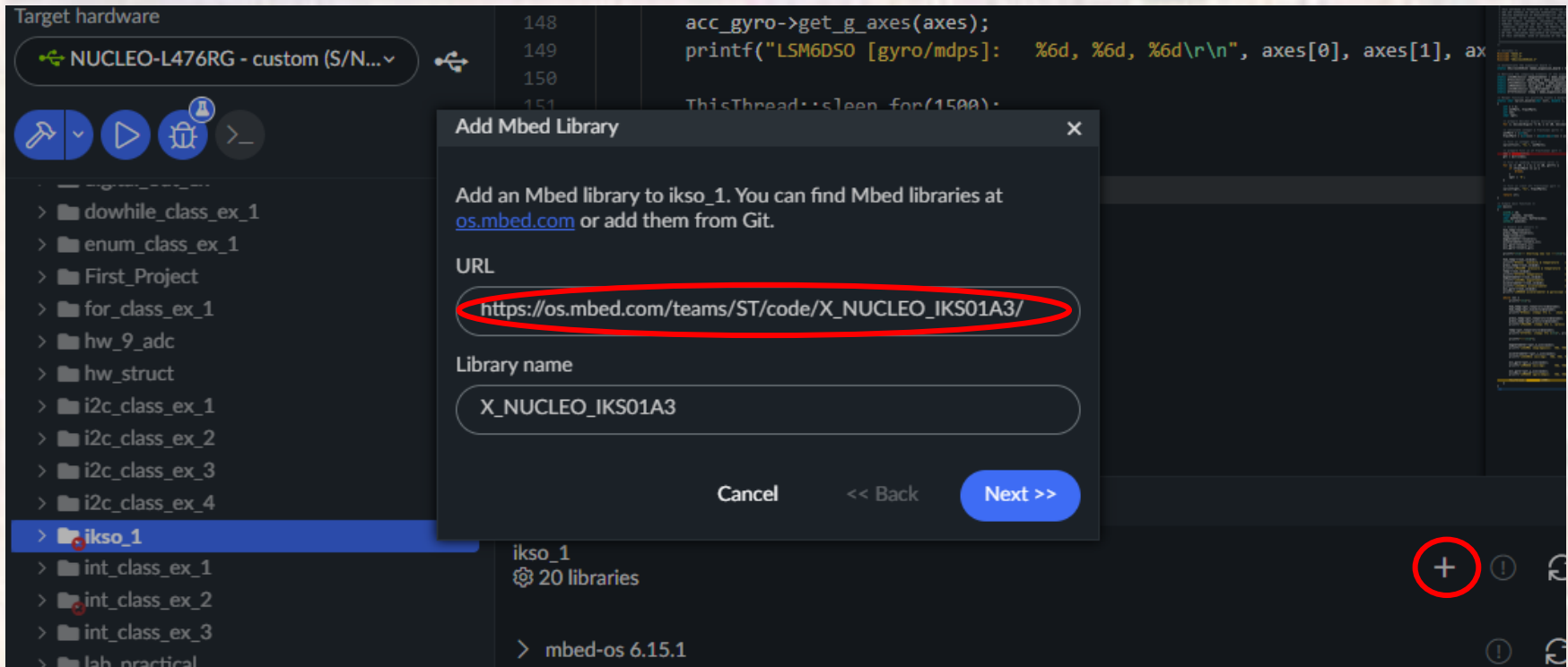


Figure 2. X-NUCLEO-IKS01A3 plugged on an STM32 Nucleo board



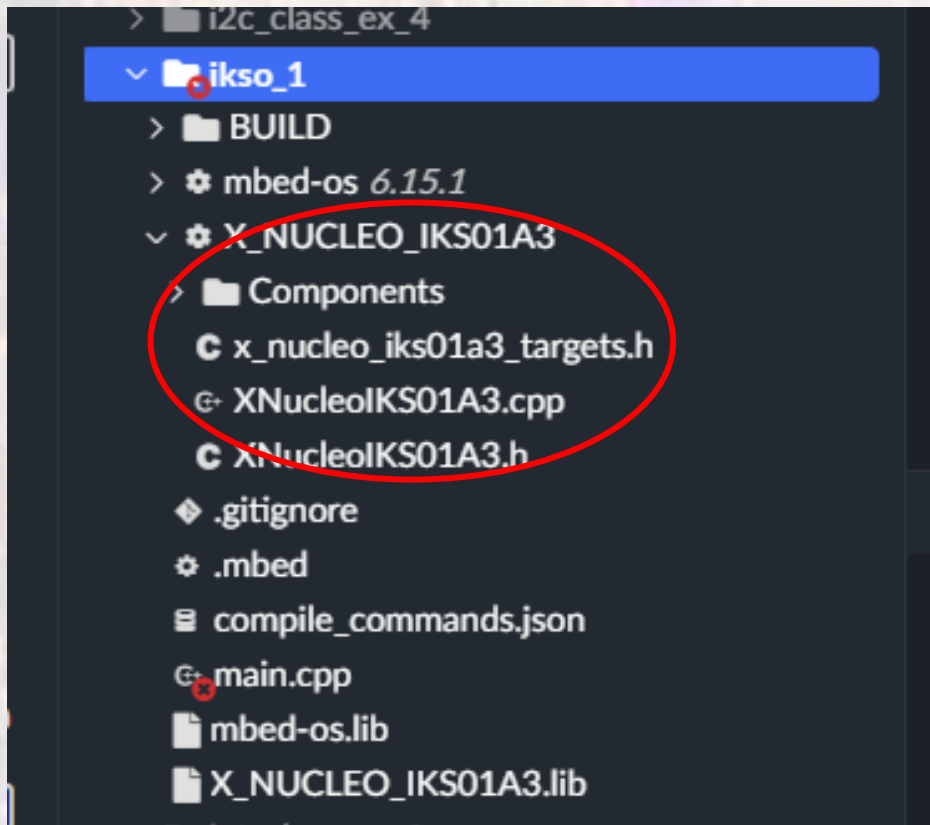
IKS01A3 Library

- Add the IKS01A3 library
 - Press the + in the mbed libraries section
 - Type in the URL
 - The Library should come up automatically
 - Press next



IKS01A3 Library

- Add the IKS01A3 library



IKS01A3 Basic APIs

- Include library

```
#include "XNucleoIKS01A3.h"
```

- Create object
 - Using a pointer

```
static XNucleoIKS01A3 * ikso_board = XNucleoIKS01A3::instance(D14, D15, D4, D5, A3, D6, A4);
```

- Create pointers to each device
 - Note: two access methods

```
static LIS2MDLSensor * magnetometer = (*ikso_board).magnetometer;  
static HTS221Sensor * humidity_temp = (*ikso_board).ht_sensor;  
static LPS22HHSensor * pressure_temp = (*ikso_board).pt_sensor;  
static LSM6DSOSensor * accelerometer_gyro = ikso_board->acc_gyro;  
static LIS2DW12Sensor * accelerometer = ikso_board->accelerometer;  
static STTS751Sensor * temp = ikso_board->t_sensor;
```

IKS01A3 Basic APIs

- Enable each desired device

```
magnetometer->enable();  
humidity_temp->enable();
```

- Access the device

```
magnetometer->read_id(&id);  
temp->get_temperature(&val1);
```

IKS01A3 Example

