
Software for the CognIoT iCogs is available on GitHub. The purpose of the software is to demonstrate the capabilities and provide some working software as a platform for starting project development.

Within the iCogs Github repository is software for all 4 iCogs offering sample code to demonstrate the functions available which are listed below

LIGHT SENSOR LS.1

The iCog Light sensor uses the Intersil ISL29023 digital light sensor to measure ambient and infrared light. Users should read the Intersil ISL29023 datasheet for more information about the sensor.

Using the supplied software the following functions are available, each command being accessed by the letter.

- 1 - Read Command Register 1
- 2 - Read Command Register 2
- A - Read all data blocks
- L - Calculate lux Reading **1
- t - Turn on ALS Mode
- i - Turn on IR Mode
- o - Turn off Sensor
- e - Exit program

Note 1: This requires the sensor to be in either ALS or IR mode first.

For more information about these commands and all of the functionality of the Ls.1 reader please refer to the datasheet which can be found at <http://www.cogniot.eu/iCogSensors.html>.

TEMPERATURE AND HUMIDITY SENSOR TS.1

The iCog Temperature and Humidity sensor uses the ST Microelectronics HTS221 capacitive digital sensor to measure temperature and humidity. Users should read the ST HT221 datasheet for more information about the sensor.

Using the supplied software the following functions are available, each command being accessed by the letter.

- W - Read Who Am I Information
- R - Read Registers
- A - Read all data blocks
- F - Refresh Registers
- n - Turn on Sensor
- o - Turn off Sensor
- T - Read the Temperature
- U - Read the Humidity
- q - Turn on Heater for 1 second
- e - Exit program

For more information about these commands and all of the functionality of the Ts.1 reader please refer to the datasheet which can be found at <http://www.cogniot.eu/iCogSensors.html>.

RATE SENSOR RS.2

The iCog Rate sensor uses the Freescale MMA8652FC 3-axis, 12-bit digital accelerometer. Users should read the Freescale MMA8652FC datasheet for more information about the sensor.

Using the supplied software the following functions are available, each command being accessed by the letter.

- T - Self Test
- d - Tap Detection
- W - Who Am I
- A - Read all data blocks
- x - Read Axis Values
- r - Software Reset
- c - Read Configuration Data
- s - Set System Mode
 - 1 - STANDBY
 - 2 - ACTIVE
 - 0 - return
- f - Set Full Scale Mode
 - 2 - 2 G
 - 4 - 4 G
 - 8 - 8 G
 - 0 - return
- e - Exit program

For more information about these commands and all of the functionality of the Rs.2 reader please refer to the datasheet which can be found at <http://www.cogniot.eu/iCogSensors.html>.

PRESSURE SENSOR PS.3

The iCog Pressure sensor uses the Freescale MPL3115A2 Precision Altimeter to measure pressure.. Users should read the Freescale datasheet for more information about the sensor.

Using the supplied software the following functions are available, each command being accessed by the letter.

- t - Read Temperature
- l - Read Temperature Delta
- w - Who Am I
- A - Read all data blocks
- r - Software Reset
- c - Read Configuration Data
- o - Set Output Mode
 - 1 - Normal Mode

- 2 - Raw Mode
- 0 - Return
- s - Set System Mode
 - 1 - STANDBY
 - 2 - ACTIVE
 - 0 - return
- a - Set Measurement Mode
- p - Read Pressure
- B - Read Current Barometric Offset
- b - Set Barometric Input
- d - Read Pressure Deltas
- e - Exit program

For more information about these commands and all of the functionality of the Ps.3 reader please refer to the datasheet which can be found at <http://www.cogniot.eu/iCogSensors.html>.

INSTALLATION INSTRUCTIONS

To install the software, follow these simple steps:-

- 1) Upgrade and Update the operating system
 - a) `sudo apt-get update`
 - b) `sudo apt-get upgrade`
- 2) Using Raspberry Pi Configuration, disable the shell and kernel from using the serial port.
 - a) From the Menu, select Preferences, Raspberry Pi Configuration
 - b) On the interfaces tab, set Serial to 'Disabled'
- 3) Install the necessary software to support Bostin Technology's application
 - a) `sudo apt-get install python-dev python-setuptools`
 - b) `sudo apt-get install WiringPi`
- 4) Install Bostin Technology Software
 - a) `git clone https://github.com/CognIoT/iCogs.git`
- 5) Both the C and Python versions can now be found in the newly created iCogs folder.
 - a) `cd iCogs`
- 6) To run the Python script, switch to the python directory and run it
- 7) `cd python`
 - a) `sudo python3` followed by the iCog software to be run, e.g `Ls_1.py`
- 8) To run the C program, it first needs to be compiled
 - a) `cd c`
 - b) `./Build`
 - c) It can be run with
 - i) `sudo` followed by the iCog software to be run, e.g `./Ls_1`