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GYPRO® Evaluation Kit

GYPRO® AXO® EVB3.0
(as delivered by Tronics)

Arduino Leonardo or Yùn USB cable
(to be purchased separately)

USB cable
(type A/type MicroB)

Arduino Leonardo or Yùn

GYPRO® AXO® Evaluation Tool

Software
supplied by Tronics

Features

This user manual is intended for customers who have purchased GYPRO® or AXO® Evaluation Board and who would like to implement it using Arduino platform. The following paragraphs explain how to set-up the full evaluation kit and how to configure Arduino Leonardo or Yùn Rev.2 board.

Required:

- GYPRO® or AXO® EVB
- Header Connectors (x5)
- Arduino Leonardo board or Arduino Yùn Rev. 2 Board (**not included**).
- Micro-B USB Cable (**not included**).
- Computer running Window 7 or later version with USB port.

Note: If you intend to perform tests over temperature, make sure that your USB Cable can withstand the operating temperature range specified by Tronics

1. System Requirements

Tronics Evaluation Tool software is compatible with OS Windows 7 or later versions. The program automatically adapts to the operating system on which it runs, eliminating the need for manual settings.

Recommended system configuration:

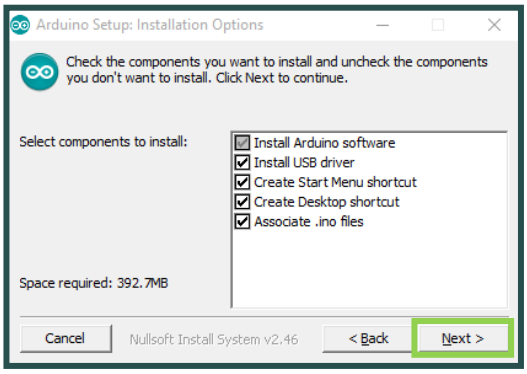
- Processor 1.6 GHz or faster
- 8 GB RAM
- 1280*960 pixels minimal screen resolution
- USB Port
- Operating Systems: Windows 11, Windows 10, Windows 7

2. Setting Up

2.1. Installing Arduino IDE

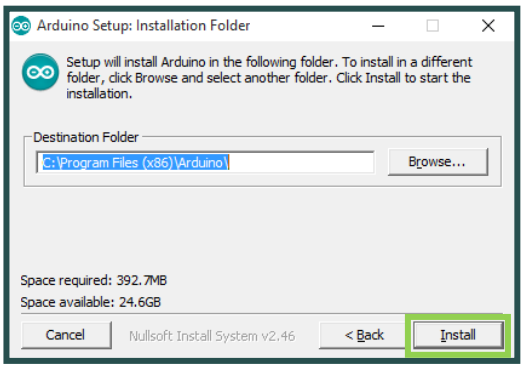
1. Install open-source Arduino software (IDE) *1.X.X.windows.exe* (please authorize the driver installation process).

NOTE: link to the software version is available on our **website**.

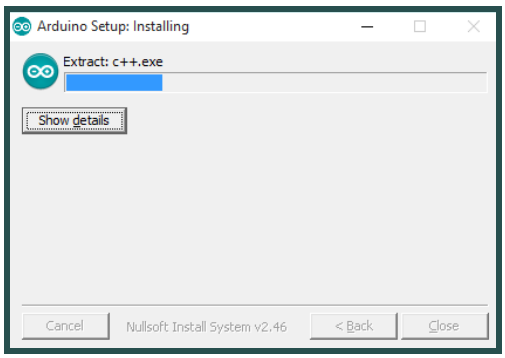


2. Select all the components and then click on "**Next**" button.

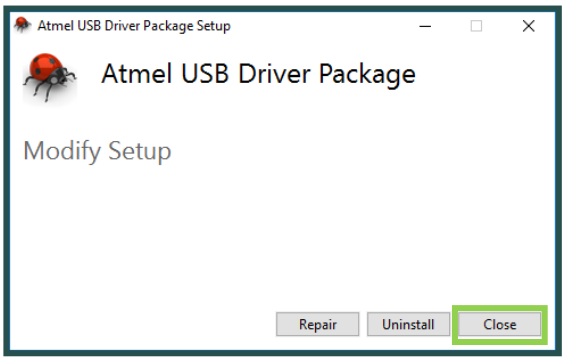
3. Choose the installation directory (we suggest to keep the default one) then click on the "**Install**" button.



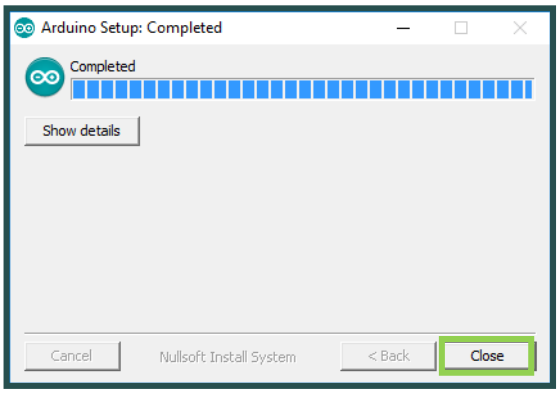
4. The process will extract and install all the required files to execute properly the Arduino Software (IDE).



5. The installation of Arduino IDE includes "Atmel USB Driver Package" installation. You don't need to install this package if you don't use other boards than the Arduino Leonardo or Arduino Yun in the future.

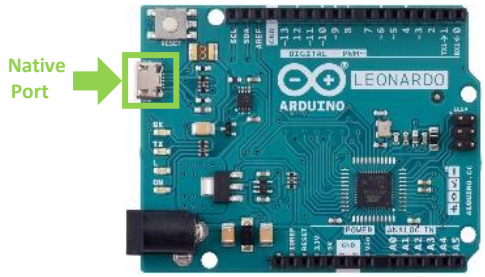


6. Once the status "Completed" is displayed, Arduino IDE is installed and is ready to be used. You can close the Installer.



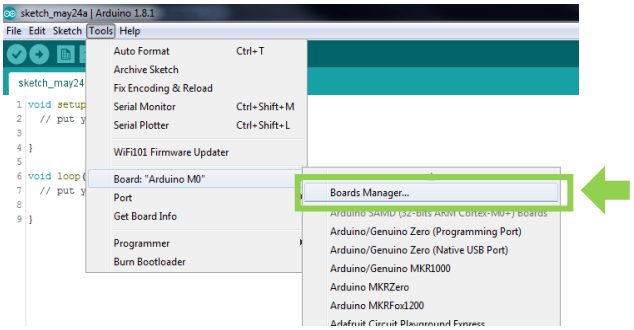
2.2. Configuring Arduino Board (Case Arduino Leonardo)

1. Connect the Arduino Leonardo board to your computer using the USB cable and the Native USB Port. *If this is the first time you are connecting an Arduino Leonardo Board to your computer, please wait a few minutes before going on, as Windows needs to install all the necessary drivers.*

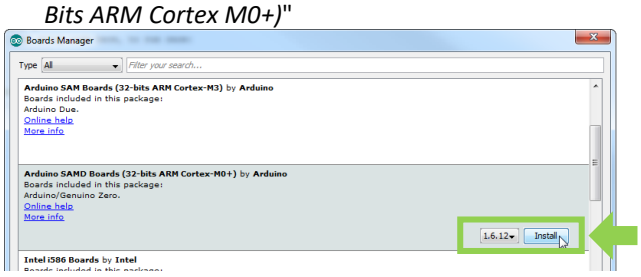


2. Open Arduino IDE.

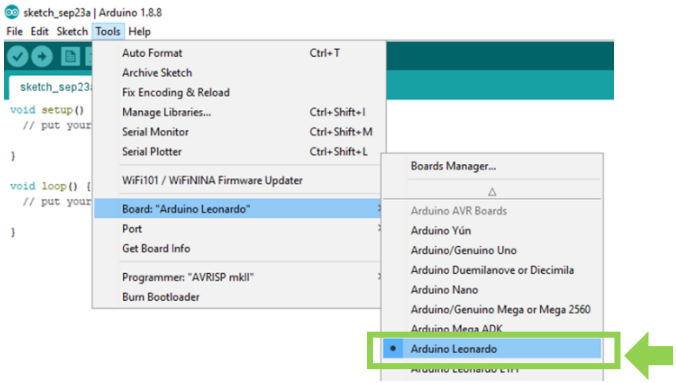
3. Open the "*Boards Manager*" in the *Tools* > *Board* menu.



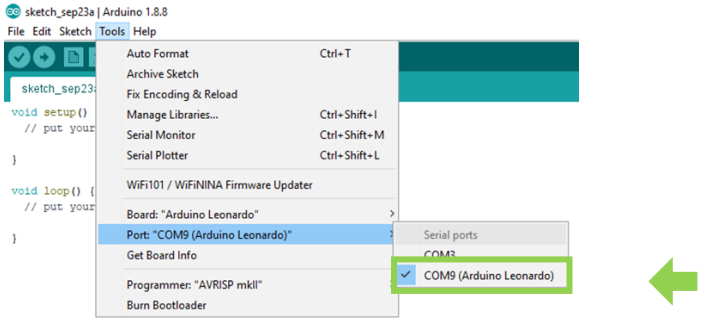
4. Install latest version of "*Arduino SAMD Boards (32-Bits ARM Cortex M0+)*"



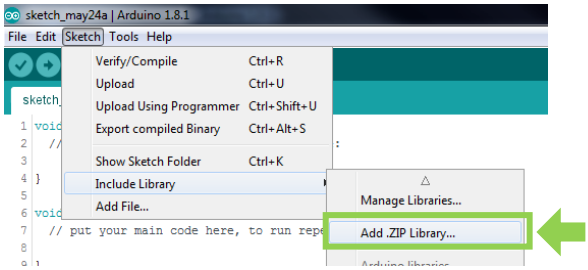
5. Select "*Arduino Leonardo*" in the Tools > Board menu.



6. Select the serial port number corresponding to the Arduino board in the Tools > Port menu. The name "Arduino Leonardo" should be associated with the correct COM port.

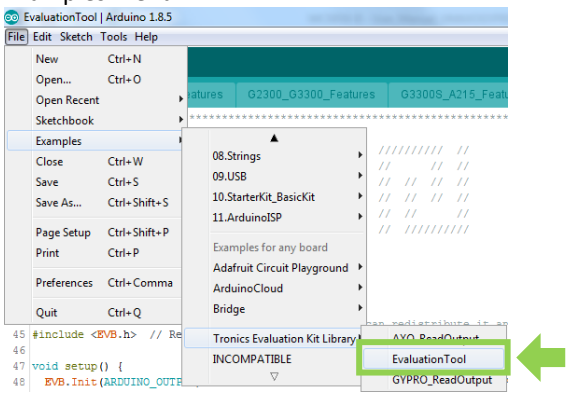


7. Now, you need install *Tronics EVB Library* : Click on "Add .ZIP Library…" in the *Sketch* > *Include Library* menu.



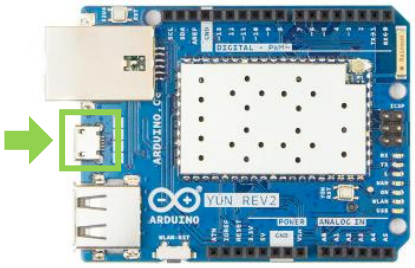
8. Select "TronicsEvaluationKit_Library" in the "Arduino Firmware & IDE" folder into the USB flash drive.

9. Now, you can open "EvaluationTool" firmware in the Examples menu.



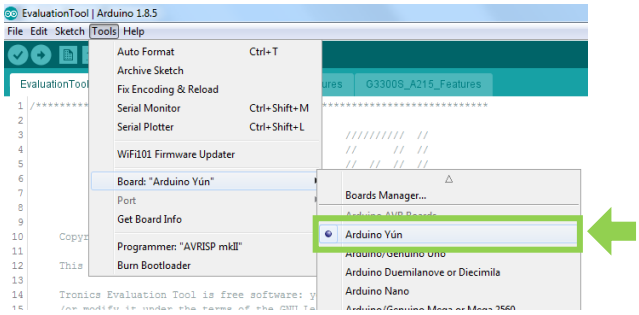
2.3. Configuring Arduino Board

1. Connect the Arduino Leonardo or Yùn board to your computer using the USB cable and the USB Port. *If this is the first time you are connecting an Arduino Board to your computer, please wait a few minutes before going on, as Windows needs to install all the necessary drivers.*

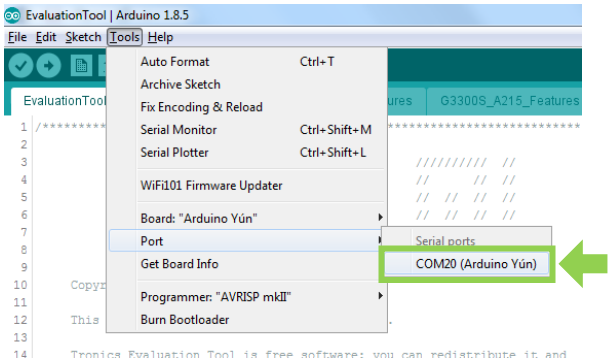


2. Open Arduino IDE.

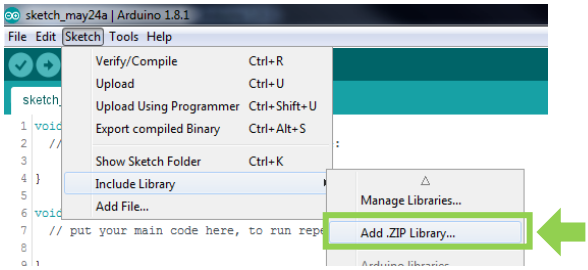
3. Select *"Arduino Yùn" or "Arduino Leonardo"* in the Tools > Board menu.



4. Select the serial port number corresponding to the Arduino board in the Tools > Port menu. The Arduino board should be associated with the correct COM port.

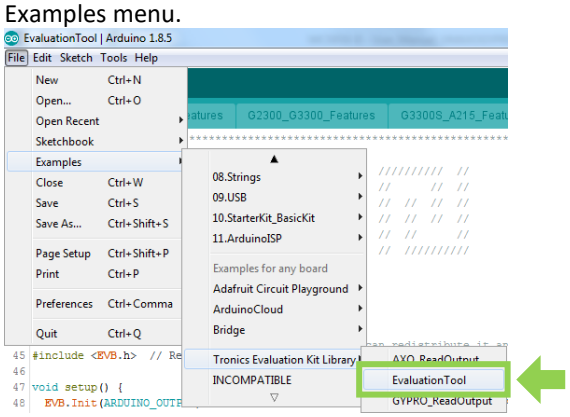


5. Now, you need install *Tronics EVB Library* : Click on "Add .ZIP Library…" in the *Sketch > Include Library* menu.



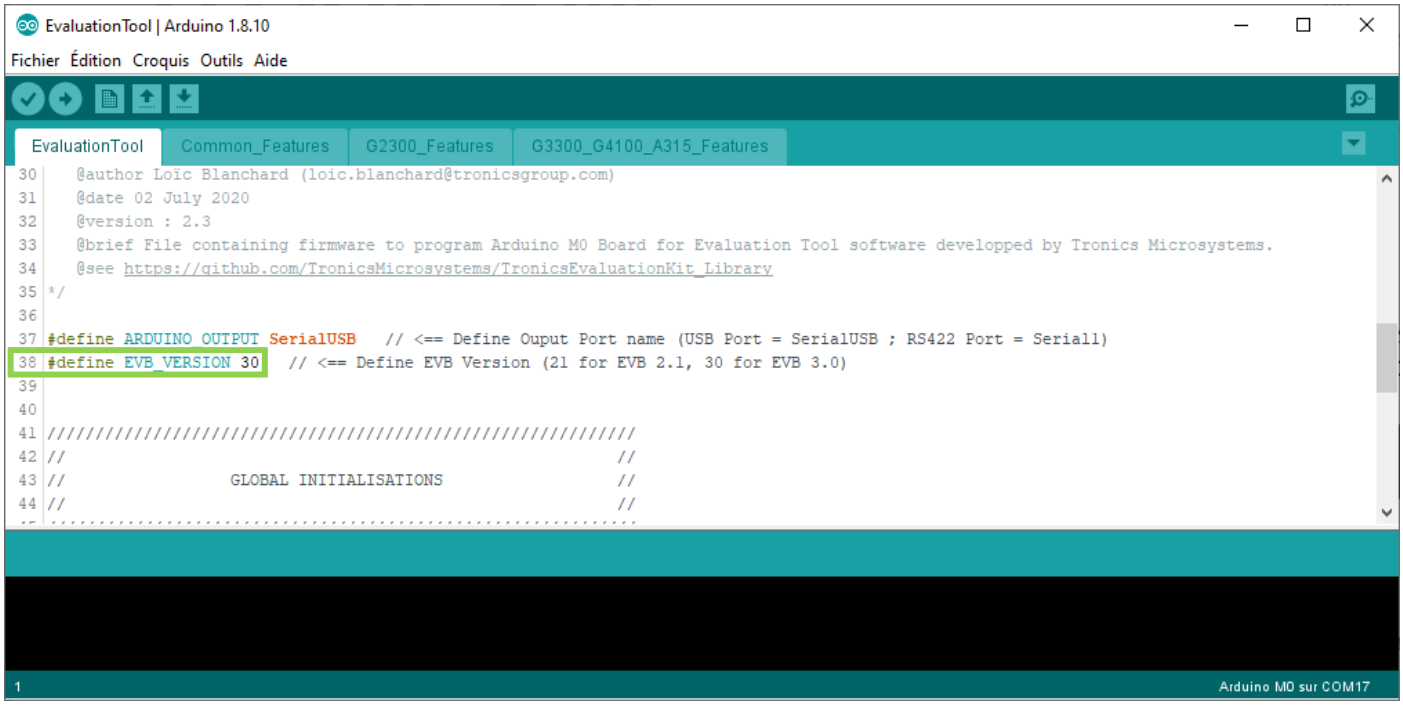
6. Select "TronicsEvaluationKit_Library" in the "Library Evaluation-Kit" folder.

7. Now, you can open "EvaluationTool" firmware in the Examples menu.



2.4. Configuring Arduino Firmware

1. Edit the *line 38* of the firmware: According your evaluation board, you need to change the value by:
   - EVB2.0 → EVB_VERSION **20**
   - EVB2.1 → EVB_VERSION **21**
   - EVB3.0 → EVB_VERSION **30** (default value)



2. Upload the program: Simply click on the "Upload" button in the environment. Wait a few seconds, and you should see the RX and TX LEDs on the board flashing. If the upload is successful, the message "Done uploading." will appear in the status bar at the bottom of the window.

3. Close Arduino IDE

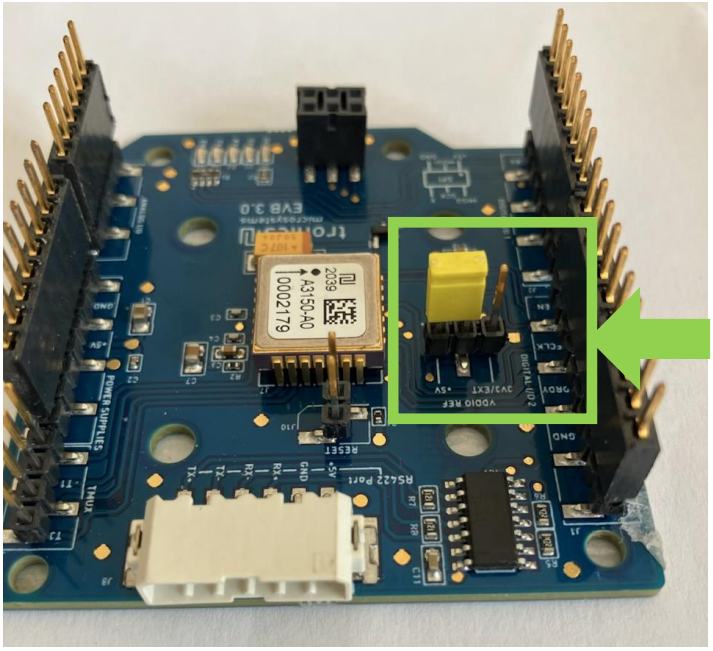
➔ **NOW YOUR ARDUINO BOARD IS PROGRAMMED AND READY TO BE USED WITH TRONICS EVALUATION TOOL.**

2.5. Assembling EVB with Arduino Board

4. Disconnect your Arduino board from the computer, since the Arduino Board should be switched-off for the next step.

5. *For EVB3.0 :* Add a Jumper to J9 connector between "5V" and "VDDIO REF" pins. This will apply the same reference voltage for SPI signals as the Arduino board.

   Note : It is important to ensure that the VDDIO voltage matches the SPI voltage of the Arduino (or any other Arduino-compatible shield). A difference in voltage may cause the sensor device to overheat, resulting in degraded performance.



6. Plug the GYPRO® or AXO® Evaluation Board on the Arduino Board, using the 5 connectors supplied by Tronics. The correct position is to have the Arduino board on top (above the Evaluation board).

7. Connect the Arduino Board to your computer using the USB cable and the Native Port.

8. Now you can launch *Tronics Evaluation Tool.exe* software on your computer!

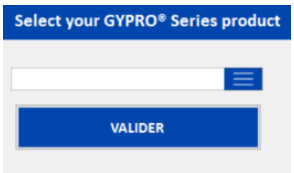
3. Basic Operation of Tronics Evaluation Tool Software

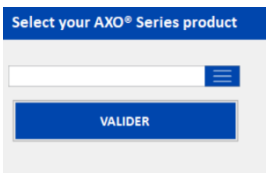
The Evaluation Tool is made of 5 tabs:

- **Reading GYPRO® / AXO® (Main Tab)**:
  Reads the sensor data (Angular rate / Linear Acceleration and Temperature) and displays them on two real-time charts.
- **System Register (SR)**:
  Enables reading, writing or changing the output format of the data (Raw, Compensated or Calibrated) by modifying the sensor System Register.
- **Multi-Time-Programmable (MTP)**:
  Useful to read and program new temperature compensation coefficients in the MTP of the sensor.
- **Others:**
  To check Software and Hardware Self-Test, to read Drive Frequency, to measure Start-Up Time and to generate debug reports for Tronics support team.
- **Compass / Plane:**
  Displays a real-time compass using GYPRO® or a plane using AXO®.

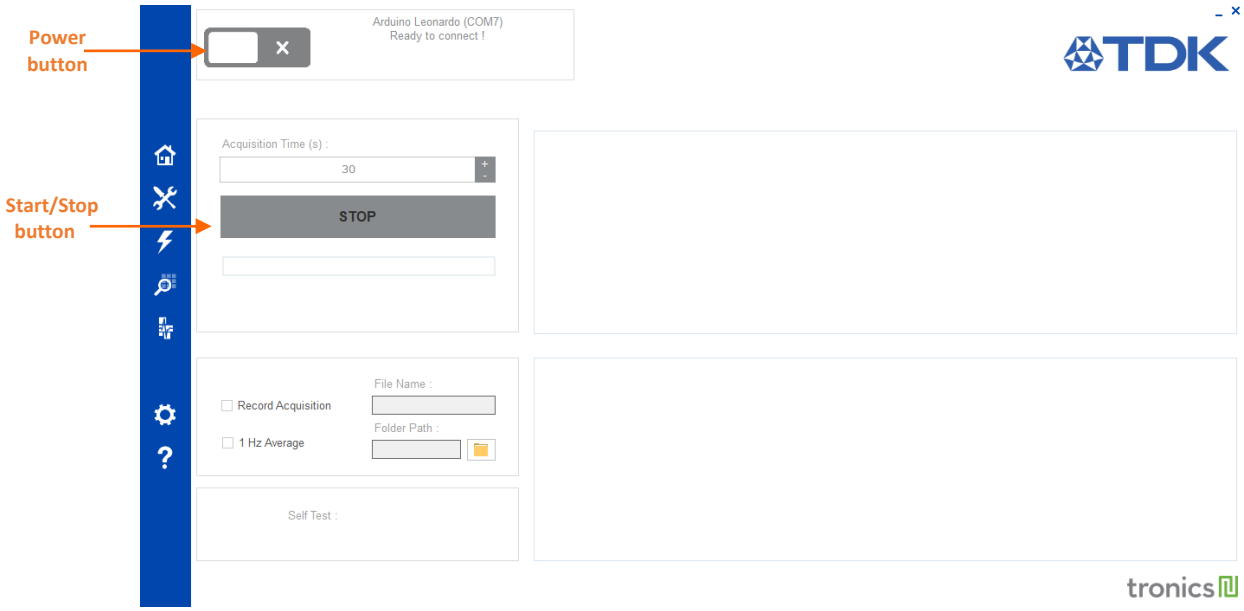
Once the Arduino board is detected by the software, you can click on the top left power ON/OFF button. The application will start and read the sensor information (serial number and type of sensor).

Once the Arduino board is detected by the software, you can click on the top left power ON/OFF button. The application will start and read the sensor information (serial number and type of sensor). Please choose the correct product you are currently testing in the list proposed.





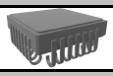
Choose an Acquisition time (1s minimum) and click on the "**Start/Stop"** button.



➔ FOR DETAILED DESCRIPTION OF TRONICS EVALUATION TOOL SOFTWARE PLEASE READ THE DOCUMENT TRONICS EVALUATION KIT – SOFTWARE USER MANUAL

4. Available Tools and Resources

The following tools and resources are available on GYPRO® and AXO® webpages of Tronics website.

Item	Description
Documentation & technical notes	
	**GYPRO4300 - Datasheet**
	**AXO3XX - Datasheets**
Mechanical tool	
	**GYPRO®4000 Series and AXO®300 Series - 3D model**
Evaluation kit	
	**Tronics EVB3** – Evaluation board *Evaluation board for AXO315 and GYPRO4300, compatible with Arduino Leonardo and Arduino Yùn*
	**Tronics Evaluation Tool** – Software
	**Tronics EVB3** – User manual
	**Tronics Evaluation Kit** – Quick Start Guide
	**Tronics Evaluation Tool** – Software User Manual
	**Tronics Evaluation Tool** – Arduino Firmware

Should you encounter any issue while using GYPRO® or AXO® Evaluation Kit, please contact Tronics technical support by sending an email to support.tronics@tdk.com.