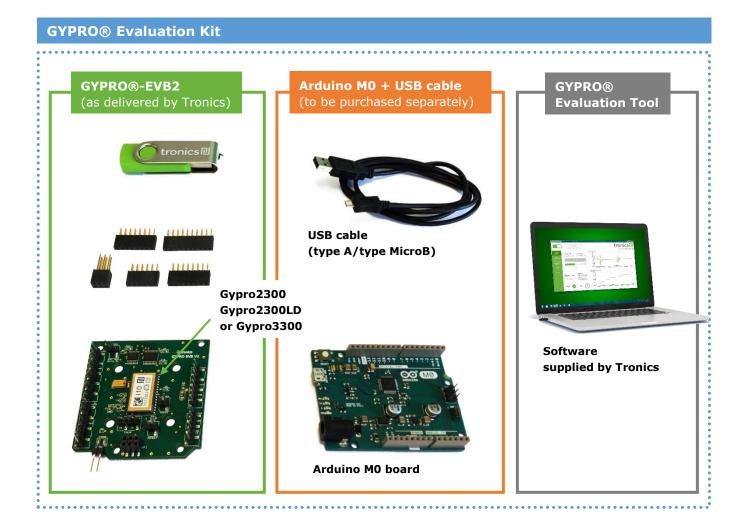
tronics **ENVISION MEMS | DELIVER MEMS**

GYPRO [®] Evaluation Kit	Doc Ref:	UMGYPRO-EVK
Quick-start guide	Rev:	1.0
Quick Start galac	Date:	Sept. 2016



This user manual is intended to customers who have purchased GYPRO®-EVB2 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 M0 board.

Supplied by Tronics

Required:

- GYPRO[®]-EVB2 with a GYPRO[®] MEMS Gyro
- Header Connectors (x5)
- Tronics USB Flash drive.
- Arduino M0 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

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1 Related documentation & resources

This document should be read in conjunction with

- UMGYPRO-EVB2 : User manual for GYPRO® Evaluation board
- SWMGYPRO-EVK : GYPRO® Evaluation Tool software user manual

You can also watch the tutorial video here.

2 System Requirements

GYPRO[®] 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
- 2 GB RAM
- 1280*960 pixels minimal screen resolution
- 780 MB free hard disk space for the Arduino IDE and the Tronics GYPRO® Evaluation Tool software (additional space is needed during installation only to accommodate the initial setup files).
- USB Port.
- Operating Systems: Windows 7, Windows Server 2008 R2, Windows Thin PC, Windows 8 / 8.1, Windows RT, Windows Server 2012 and Windows 10.

3 Setting Up

3.1 Installing Arduino 1.7.10 IDE

1. Plug the USB flash drive directly into an available USB port.

NOTE: A message indicating that a new device has been detected should appear at the lower right hand of your screen. It may take a few seconds to be detected.

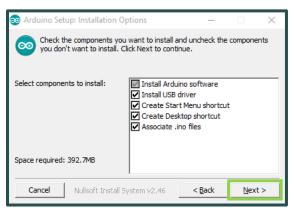
- 2. If the USB flash drive or external drive folder does NOT open automatically, follow these steps:
 - a. Click Start > Computer.
 - b. Double-click on the "TRONICS USB" associated with the USB flash drive.

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	Tutorial videos	30/09/2016 14:44	Dossier de fichiers	

3. Double-click on "**Installation**" folder then on *arduino-1.7.10.org-windows.exe* and proceed with the installation (please authorize the driver installation process).

NOTE: The latest version of this software is also available on our website.

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



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

💿 Ard	uino Setup: Installation Folder	-		Х
0	Setup will install Arduino in the following folder. To folder, click Browse and select another folder. Click installation.			
	ination Folder Program Files (x86)\Arduino\		Browse	
Space	required: 392.7MB available: 24.6GB Incel Nullsoft Install System v2.46	<u>B</u> ack	<u>I</u> nsta	ll l

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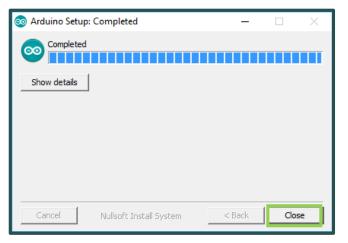
6. The process will extract and install all the required files to execute properly the Arduino Software (IDE).

💿 Arduino Setup: Installing	-		\times
Extract: c++.exe			
Show details			
Cancel Nullsoft Install System v2,46	< <u>B</u> ack	⊆lo:	se

7. The installation of Arduino 1.7.10 includes "Atmel USB Driver Package" installation. You don't need to install this package if you don't use other boards than the Arduino M0 in the future.

秦 Atmel US	SB Driver Package Setup —	×
Þ	Atmel USB Driver Package	
Modif	y Setup	
	Repair Uninstall	Close

8. Once the status "Completed" is displayed, Arduino IDE 1.7.10 is installed and is ready to be used. You can close the Installer.

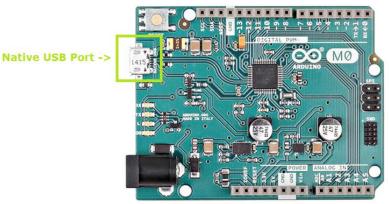


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3.2 Configuring Arduino M0 Board

1. Connect the Arduino M0 board to your computer using the USB cable and the Native USB Port. *If this is the first time you are connecting an Arduino M0 Board to your computer, please wait a few minutes before going on, as Windows needs to install all the necessary drivers.*



- 2. Open (Double-click) the *Tronics_Firmware_Arduino_M0.ino* program (sketch) available in the "*Tronics_Firmware_Arduino_M0"* folder of the Tronics USB Flash drive.
- 3. Select "Arduino M0" in the *Tools > Board* menu.

💿 Tro	nics_Firmware_Ard	uino_M0 Arduino :	1.7.10			
File Ed	dit Sketch Tools	Help				
		uto Format	Ctrl+T			
		Archive Sketch				
Tro	nics_Firmv F	ix Encoding & Relo	ad			
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7	//	rogrammer	'		Arduino Industrial 101	
8	// 8	urn Bootloader			Linino One	
9	11				Arduino Uno WiFi	
10	///////////////////////////////////////	///////////////////////////////////////			Arduino Uno	
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13		must choose Ar	duino MO in ID		Arduino Duemilanove or Diecimila	
14	#endif				Arduino Nano	
15					Arduino Mega or Mega 2560	
16	<pre>#include <spi< pre=""></spi<></pre>	.h>			Arduino Mega ADK	
17 18	Edafina Ardui	noUSB SerialUSB			Arduino Leonardo ETH	
19	guerine Aruur.	1005b Serrarosb			Arduino Leonardo	
20	long USB_In_N	umber = 0;			Arduino Micro	incomi
21	unsigned long	FCLK_firstPuls	eTime;		Arduino Esplora	sure
22		FCLK_lastPulse			Arduino Mini	sure
23 24	unsigned long	FCLK_numPulses	s;		Arduino Ethernet	sure
24		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			Arduino Eio	
26	//					
27	11	GLOBAL IN	IITIALISATIONS		Arduino BT	
28	17				LilyPad Arduino USB	
29	///////////////////////////////////////	///////////////////////////////////////	///////////////////////////////////////		LilyPad Arduino	
30 31	<pre>void setup()</pre>				Arduino Pro or Pro Mini	
32	SPI.begin()				Arduino NG or older	
33					Arduino Robot Control	
34	ArduinoUSB.	begin(115200);	11		Arduino Robot Motor	pn
35		uinoUSB) {};			Arduino ARM (32-bits) Boards	
36 37	analogReadR	esolution(16);	//		Arduino Due (Programming Port)	co 655
38	pinMode(4,	INPUT):	11			at)
39	pinMode(Al,		11		Arduino Due (Native USB Port)	-5
40	pinMode(A2,		11		Arduino ARM (32-bits) Boards	
41	pinMode(A3,	OUTPUT);	11		Arduino M0 Pro (Programming Port)	put
42					Arduino M0 Pro (Native USB Port)	
43 44	digitalWrit digitalWrit	e(A1, HIGH);	1	۲	Arduino M0	
44	-	c(13, 100);			Arduino Tian	
	*					

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4. Select the serial port number corresponding to the Arduino board in the *Tools > Port* menu. The name "Arduino M0" should be associated with the correct COM port.

	-	re_Arduino_M0 Arduino 1.7.10		
File Ed	lit Sketch	Tools Help		
Tro	D 🗈 .	Auto Format Ctrl+T Archive Sketch Fix Encoding & Reload		
1 2	111111	Serial Monitor Ctrl+Shift+	м	1//////////////////////////////////////
3	11	Board	•	▶ ////////////////
4 5	//	Port		Serial ports
6 7	11	Programmer		COM1 // COM3 //
8 9	// //	Burn Bootloader	-[COM5 (Arduino M0)

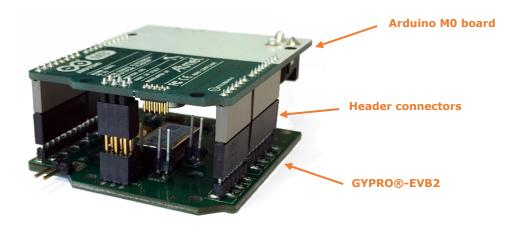
5. Upload the program: Simply click on the "Upload" button in the environment. Wait a few seconds, and you should see the RX and TX LEDs on the board flashing. If the upload is successful, the message "Done uploading." will appear in the status bar at the bottom of the window.



6. Close Arduino IDE 1.7.10

>	Now your Arduino M0 board is programmed and ready to be used with Tronics
	GYPRO® Evaluation kit

Assembling GYPRO®-EVB2 with Arduino M0 board 3.3



- 1. Disconnect your Arduino board from the computer, since the Arduino Board should be switched-off for the next step.
- 2. Plug the Tronics GYPRO[®] Evaluation Board V2 on the Arduino M0 Board, using the 5 connectors supplied by Tronics. The correct position is to have the Arduino board on top (above the GYPRO® Evaluation board).

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- 3. Connect the Arduino M0 Board to your computer using the USB cable and the Native Port.
- 4. Now you can launch GYPRO[®] Evaluation Tool.exe software on your computer!

4 Basic Operation of GYPRO® Evaluation Tool Software

The GYPRO[®] Evaluation Tool is made of 5 tabs:

- Reading GYPRO[®] (Main Tab):

Reads the sensor data (Angular rate 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 GYPRO[®] System Register.
- Multi-Time-Programmable (MTP):

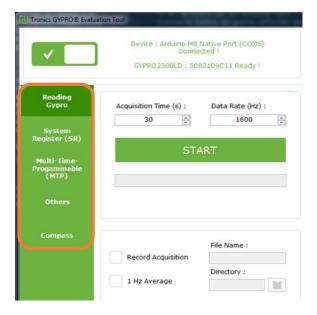
Useful to read and program new temperature compensation coefficients in the MTP of the sensor.

- Others:

To check Analog and Logical Self-Test, to read Drive Frequency and to generate debug reports for Tronics support team.

- Compass:

Displays a real-time compass using GYPRO[®].



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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 GYPRO[®] sensor information (serial number and type of sensor).

Choose an Acquisition time (1s minimum) and a Data Rate (from 1 to 2000 Hz) and click on the "Start/Stop" button.

Power button	Tronics GYPRO® Evaluation	ation Tool Device : Arduino M0 Native Port (COM5) Connected I GYPRO2300LD : 5082109C11 Ready I	tronics microsystems
Start/ Stop button	Reading Gypro System Register (SR) Multi-Time- Progammable (MTP) Others	Acquisition Time (s) : Data Rate (Hz) : 30 30 START	Rate Output (°/s) :
	Compass	Record Acquisition File Name : 1 Hz Average Directory : Self Test : Image: No reading No reading Image: No reading	Temperature Output (LSB) :

For detailed description of Tronics GYPRO® Evaluation Tool Software please read the document SWMGYPRO-EVK

5 Additional information

The latest versions of all documents related to GYPRO® sensors and evaluation kit can be downloaded from <u>Tronics website</u>: sensor datasheets, evaluation kit user manuals, softwares, etc.

Should you encounter any issue while using GYPRO® Evaluation Kit, please contact Tronics technical support by sending an email to <u>support@tronicsgroup.com</u>.

6 Document change control

Rev	Date	Change description	
1.0	Sept 2016	Initial release	

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