

## Thank You

for purchasing our product.

**Please read the following instructions carefully before operating this product.**

### ProMotoTools

is a unique computer aided motorcycle diagnostic tools family:

**Laser Evo** for motorcycle frame measurement and rear wheel alignment tool

**Dsynch** for motorcycle intake port adjustment and diagnostics

**CT01, CT02** current reader for battery, starter motor, engine conditions examination

**ExPro01** exhaust tester for checking melted catalytic converter and muffler diagnostics

**PT01** Fuel tank and fuel pump tester

## Prerequisites

### Operating system

- Microsoft Windows 7 with Service Pack 2 or newer
- Microsoft Windows 10 recommended

### Hardware requirements

- At last 80 megabytes of free disk space
- Minimum 4 gigabytes of RAM
- FullHD or higher screen resolution
- .NET 4 runtime environment

### Internet connection

Periodic software refreshing for software components is required for perfect operation.

Software updates are required too, because only new versions handling well the refreshed components. User will be informed when new software version is available.

## Installation

### Step 1

Please download the installer application from our server. Do not download the installer from 3rd party sites. The installed application is regularly checks for software update.

### Step 2

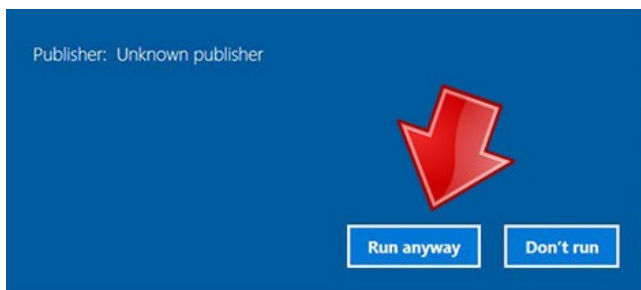
Run the installer by double clicking on the previously downloaded *syncpt\_a.b.c.d.exe* (where abcd represents the current software version)

### Step 3

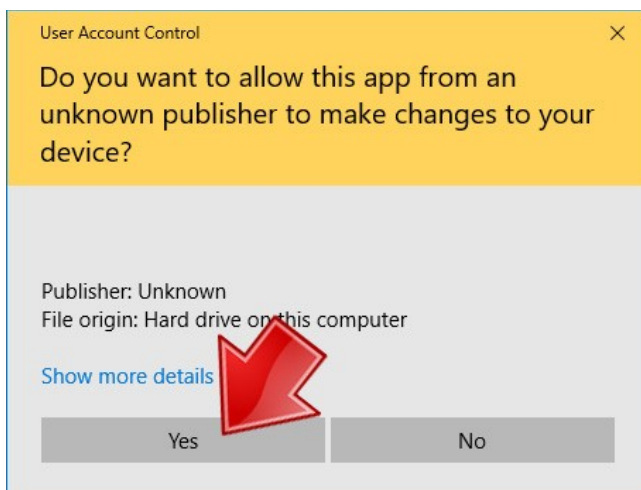
Latest Windows versions are protecting users against unknown software sources. But in this case, it is not needed.



Click on "More info" link.



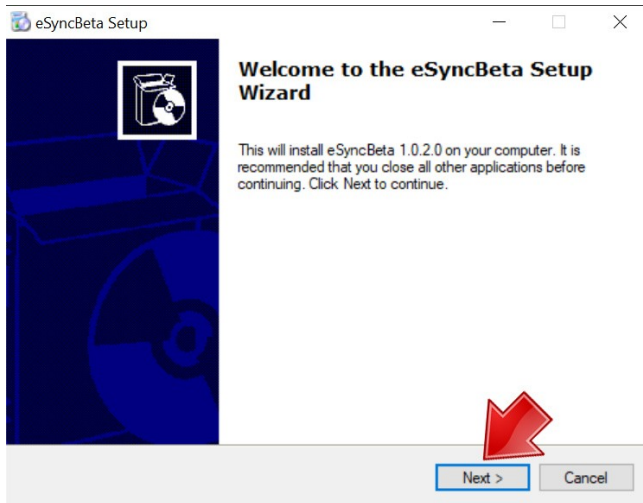
Click on "Run anyway" button.



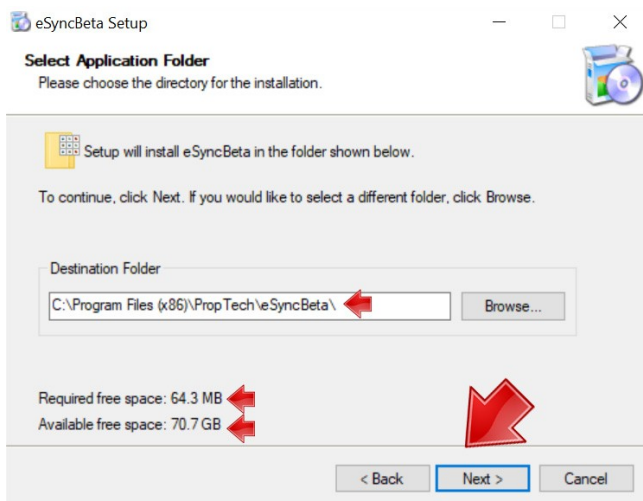
Click on "Yes" button.

### Step 4

When installer starts, please do the followings



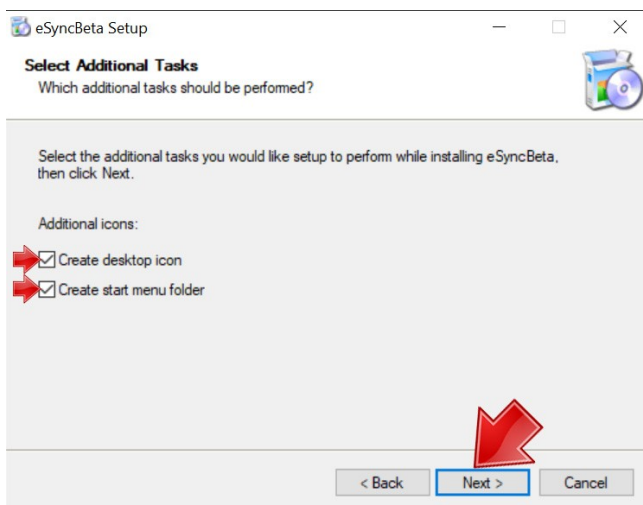
This is the Welcome Screen of installer. Click on "Next" button to continue.



On this screen You can select a different destination folder for the application.

Leave it with default contents if You're in a hurry. (Recommended.)

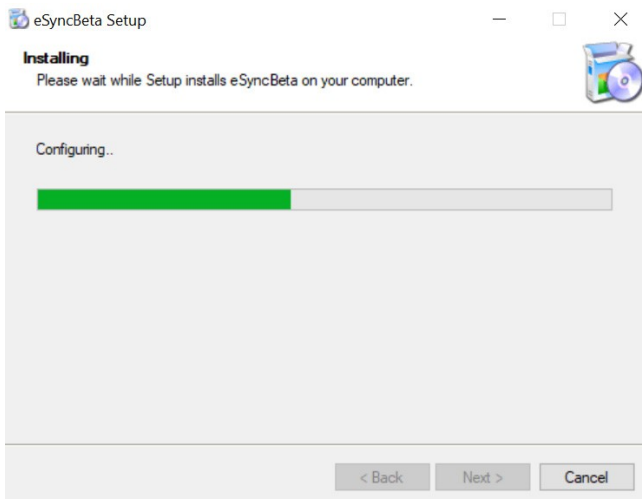
Please check Your available free disk space, then click on "Next" button.



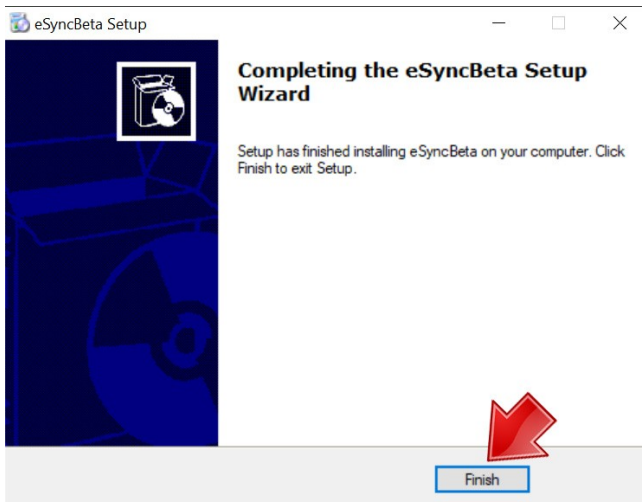
If You wish, enable additional desktop icon.

Be sure to create a start menu folder!

Click on "Next" button.



Please be patient for a few seconds.



Done. Press *“Finish”* button.

## Remove application from computer

The easiest way to uninstall the application is using our uninstaller tool from start menu folder. Simply click on uninstaller. That's all.

## Using the application

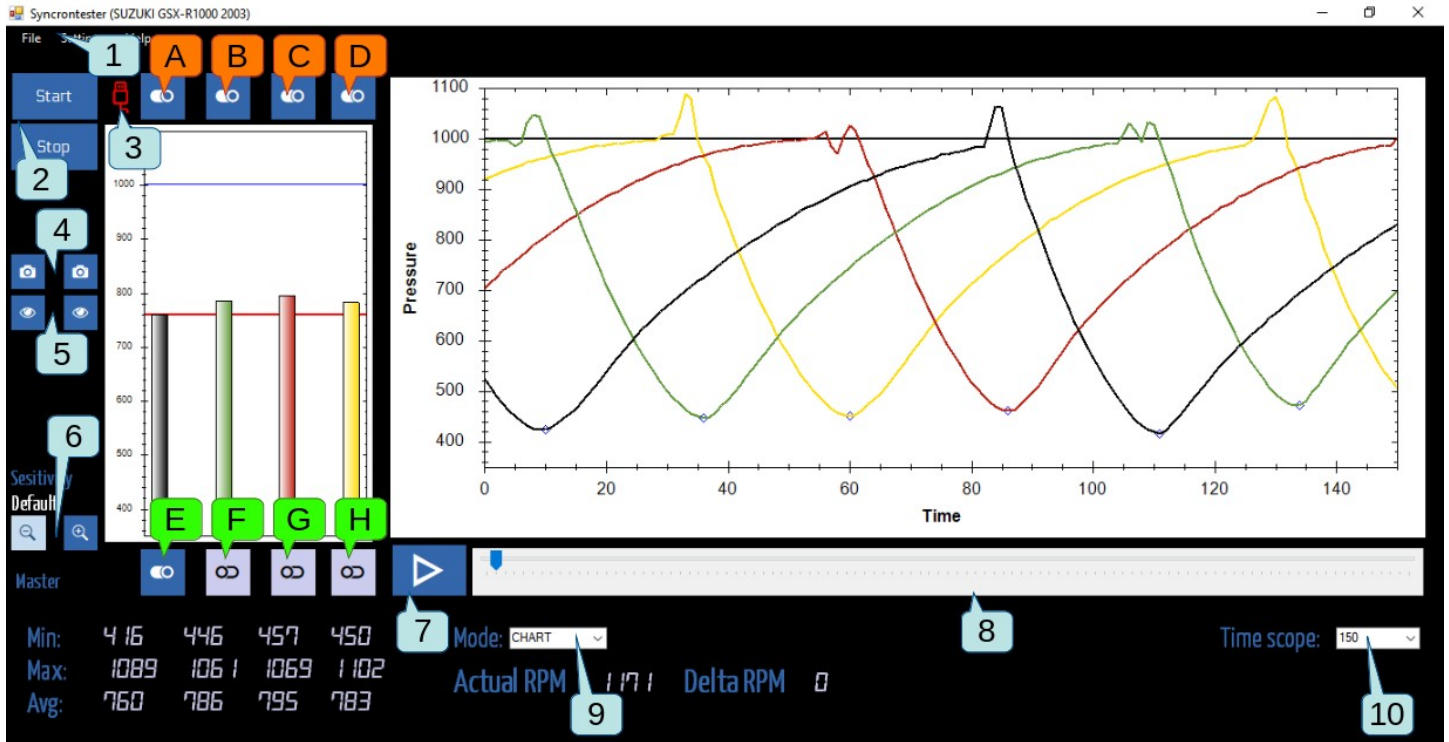
### Before You begin

We assume that You're a trained professional and You have already connected the instrument's silicone rubber hoses to the motorcycle.

### Run the application

Click the program's icon in the start menu.

## Main window



1. Main menu
2. Start and stop measuring
3. USB connection status
  1. Red – no connection
  2. Yellow –
    - connection pending
    - internet update required
  3. Green – hardware connected, ready to measure
4. Snapshot “photo” buttons
  - beginning of measurement – for “before” status
  - end of measurement – for “after” status
5. Examine snapshots in a window
6. Set sensitivity
7. Playback button - replay measurement
8. Time track display
9. Mode switch: chart / RPM
10. Time sensitivity (horizontal stretch)

A,B,C,D: turn on/off measuring cylinders  
 E,F,G,H: select master cylinder

## Your contact information

If You ever like to print a measurement, it is highly recommended to fill Your own business info. This is an initial task. You can find this box under Main menu / Settings.

CompanyBox ×

### Contact Information of Service

Company name	Phone
Magic Garage Ltd.	+44 0000 987654
Street	E-Mail
900 Maidstone Rd	magicgarage@magicgarageuklimited.net
Postal Code / ZIP	Website
TN2 4DE	www.magicgarageuklimited.net
City	
Pembury, Tunbridge Wells	




Fill these fields, and press exit icon when done.



## Motorcycle and its owner's data

For saving and printing results, you have to fill the followings.

Owner and motorcycle

<b>Owner</b> 		
Owner name	Address	
<input type="text" value="Thomas Evans"/>	<input type="text" value="999 Dean St&lt;br/&gt;Brighton BN1 3EG&lt;br/&gt;United Kingdom"/>	
Phone		
<input type="text" value="+44 8888 000123"/>		
E-Mail		
<input type="text" value="tomevans@evansmailer.com"/>		
<b>Motorcycle</b> 		
Manufacturer	Model	Year of manufacture
<input type="text" value="YAMAHA"/>	<input type="text" value="YZF-R1"/>	<input type="text" value="2014"/>
Vehicle registration plate		
<input type="text" value="AB12 CDE"/>		
Frame number		
<input type="text" value="JYARN23Y1EA004111"/>		
		

When it's done, click on the exit icon.

## Measuring

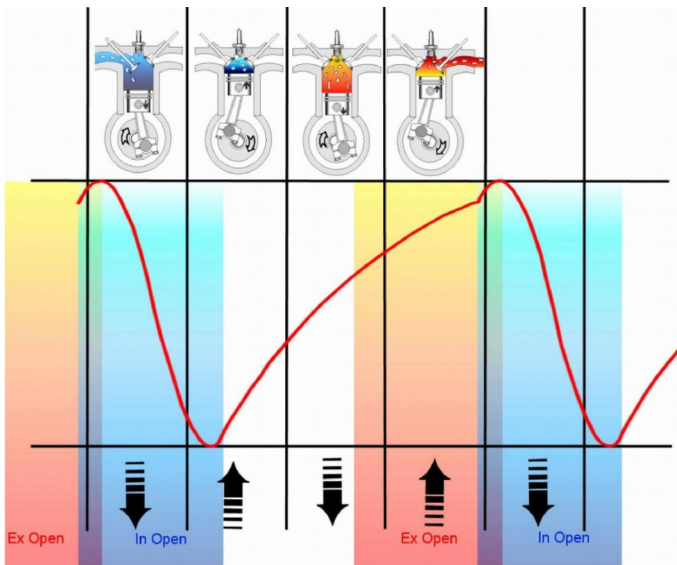
Start the engine and please be patient to reach its optimal operating temperature. Connect the hardware instrument into a free USB port on Your computer. Do not connect any other measuring tool in same time. To start measuring, click on the “Start” [2] button.

Don't forget to take snapshot from the “before synchronization” operating state. When synchronization finished, take one more snapshot with the result. Click on snapshot camera icons [4]. You can check these snapshots with eye buttons [5]. Take a new snapshot when needed.

Start Your synchronization task with setting throttle body valves or air adjusting screws. Always follow **bike specific service manual instructions**. The computer calculates average values for each cylinder. Examine diagrams of each cylinder, one by one. When these columns are similar, the cylinders are in the same condition. In the accepted region, the software changes the background color from white to green.

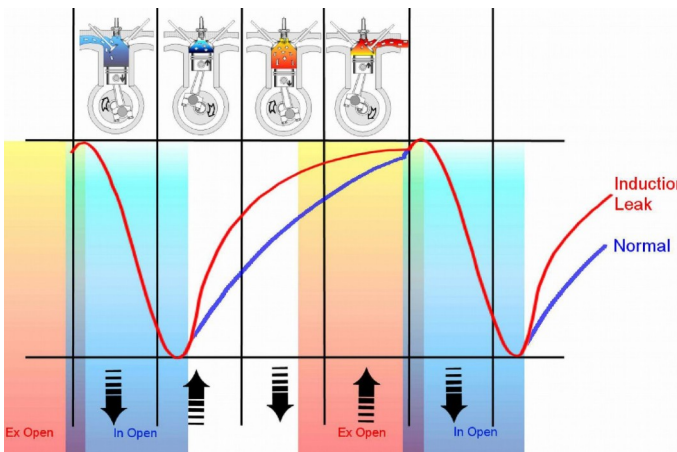
## Diagnosis – Understanding curves

The cylinder and valve condition can be inferred from the following logic:



If the engine has a long intake port the diagram will be flattened.

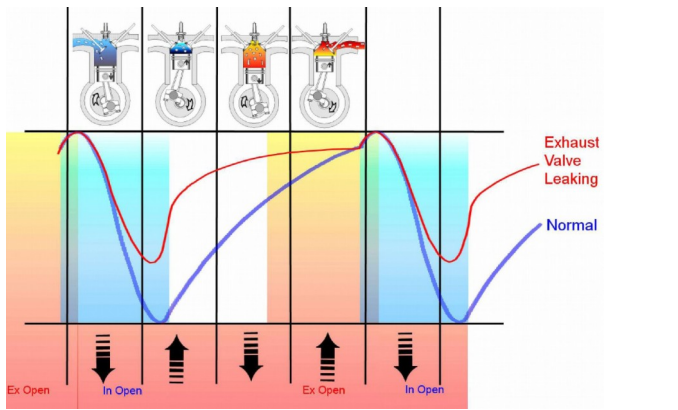
If a vacuum chamber connected to a cylinder the diagram also will be flattened.



In this case, You can examine an intake port leak:

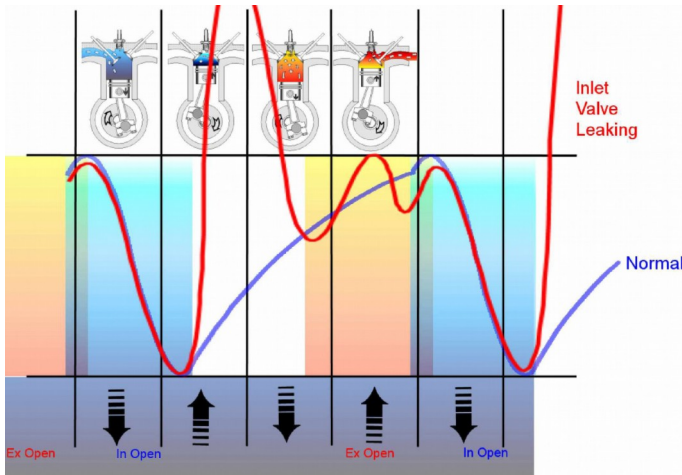
There is air induction in the intake port (Rubber parts leaking, etc.)

- blue: normal state
- red: wrong state



This example demonstrates an exhaust valve problem:  
Small exhaust valve clearance, or leaking valve seat

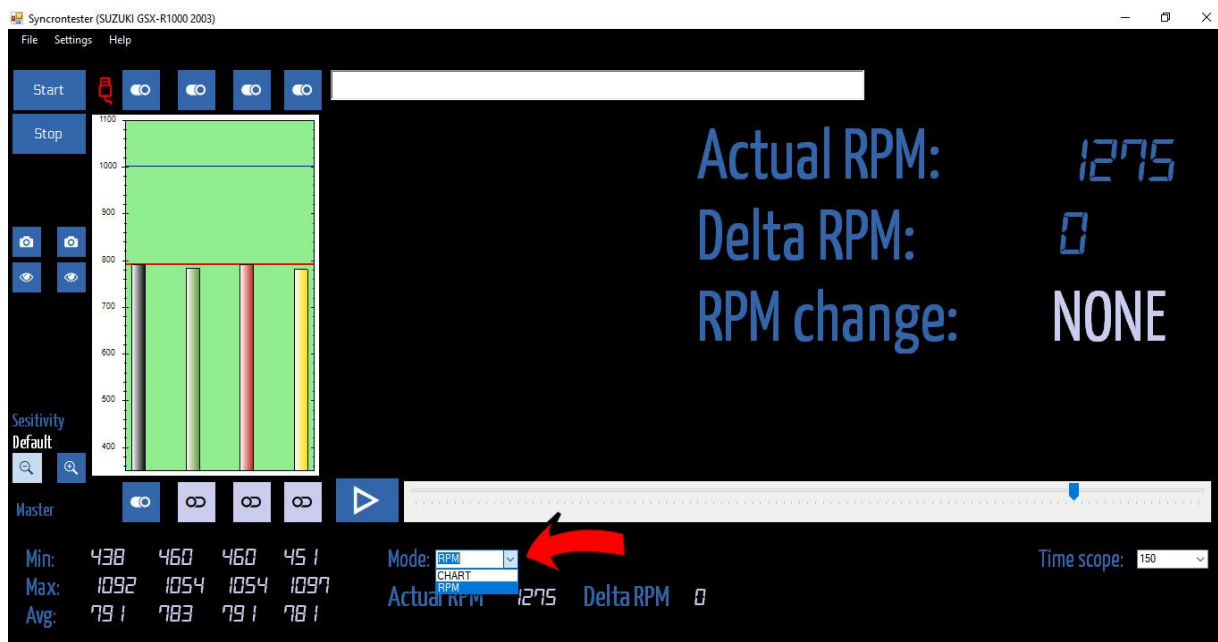
- blue: normal state
- red: wrong state



Intake valve fault:  
Small intake valve clearance, or leaking valve seat

- blue: normal state
- red: wrong state

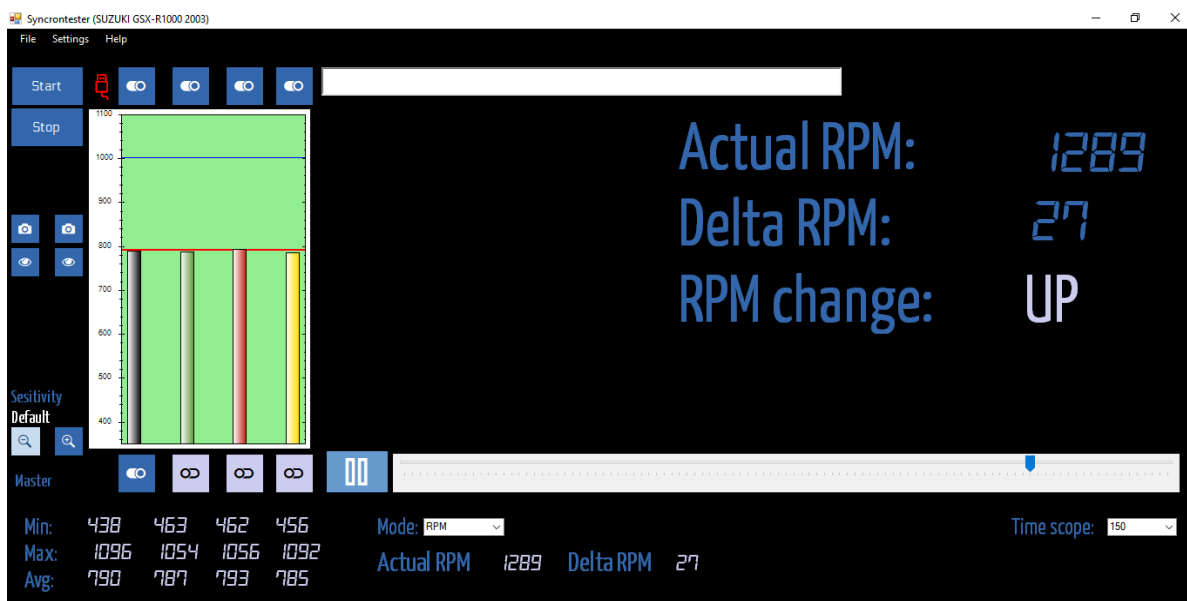
## RPM mode



Select RPM from mode dropdown menu to access RPM mode.

When you're done with intake port balancing and you have a chance to adjust fuel/air mixture by carb pilot crews of any tools with fuel injected models (different tuning electronics, such as products from Dynojet, Yoshimura, etc.) with this screen you can see RPM "UP" or "DOWN" info.

It's indicates your individual adjustment: good (UP rpm) or wrong (DOWN rpm)  
 It's indicates mixture settings by cylinders. When direction of changes are right the RPM is increasing and "UP" will shown, otherwise "DOWN" will displayed. This setting is applicable for all individual cylinders.



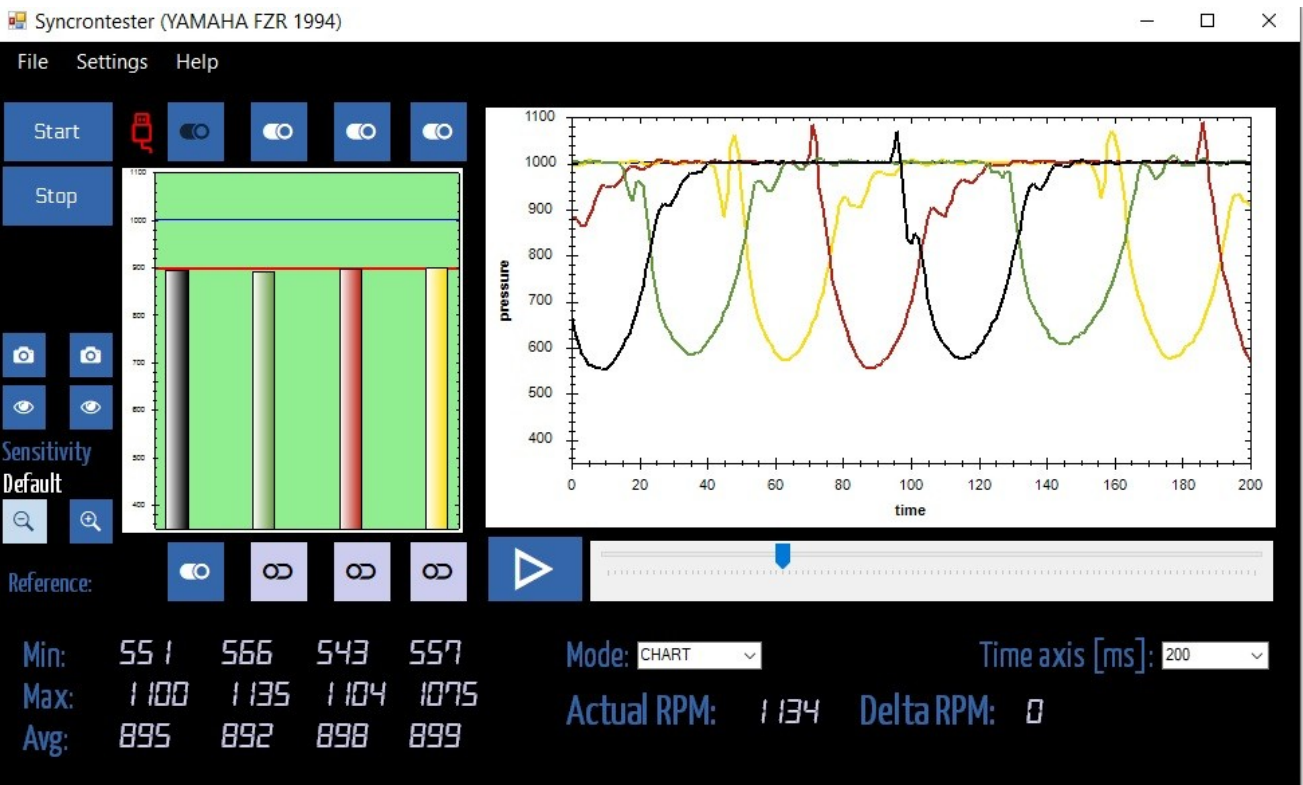
## Faults record samples:

### Throttle bearing fault:

Pressure sudden increase (throttle valve changed position)



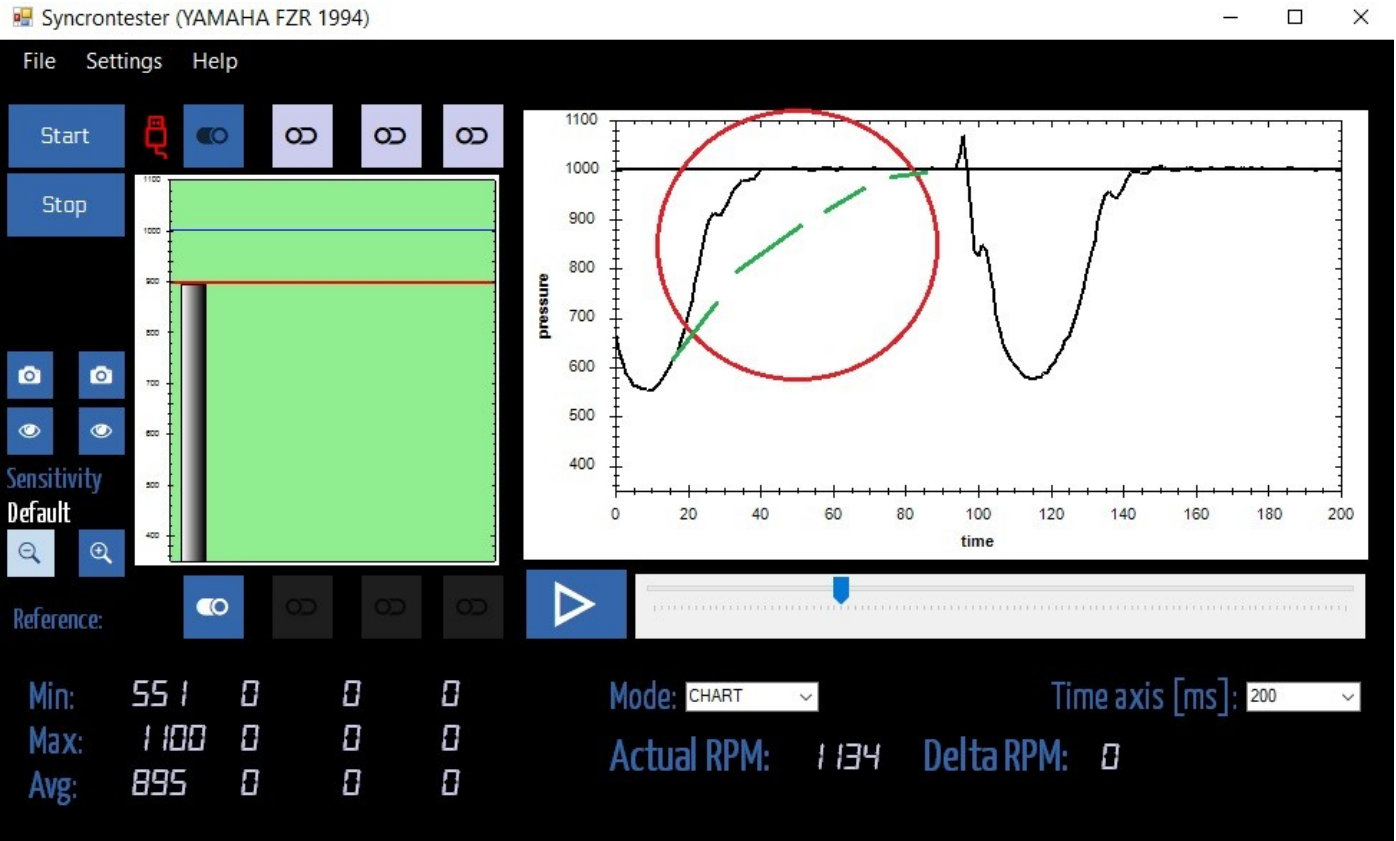
### Intake port leaking case:



### Intake port leaking case:

#2, #3, #4 switch off

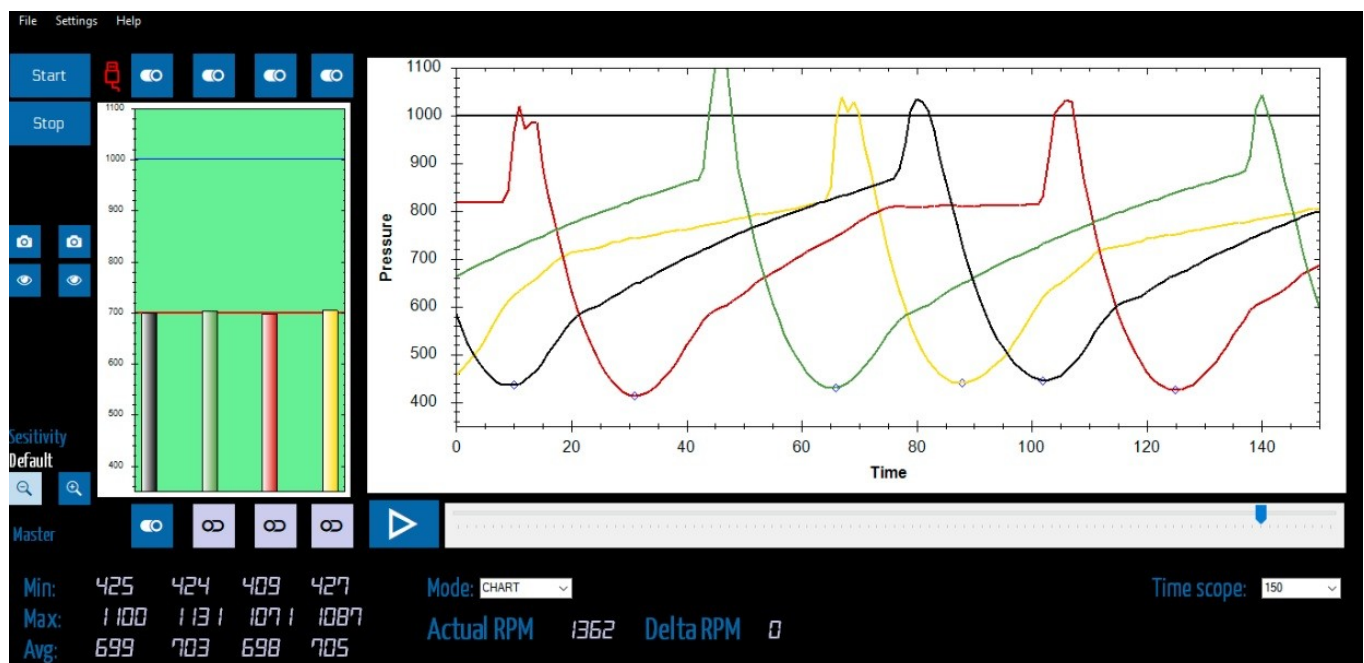
NOTE: AWG pressure 895 hKP, normally approx 700, poor engine condition



### Intake port leaking case:

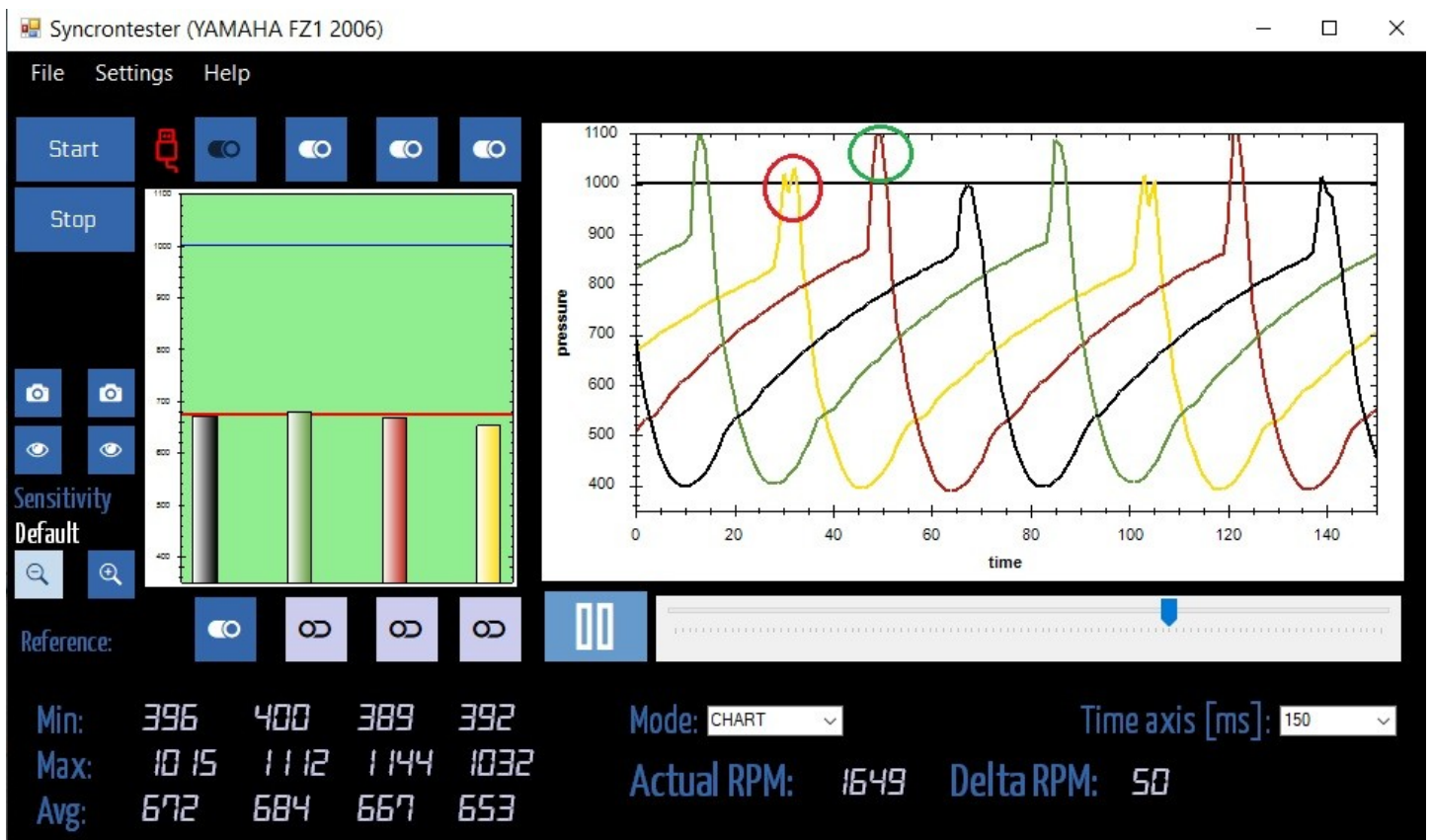
#1 #2 OK. Shape of upcoming pressure similars.

#3 #4 leaking: #3 red see 820 hPa horizontal line! #4 yellow early case effect



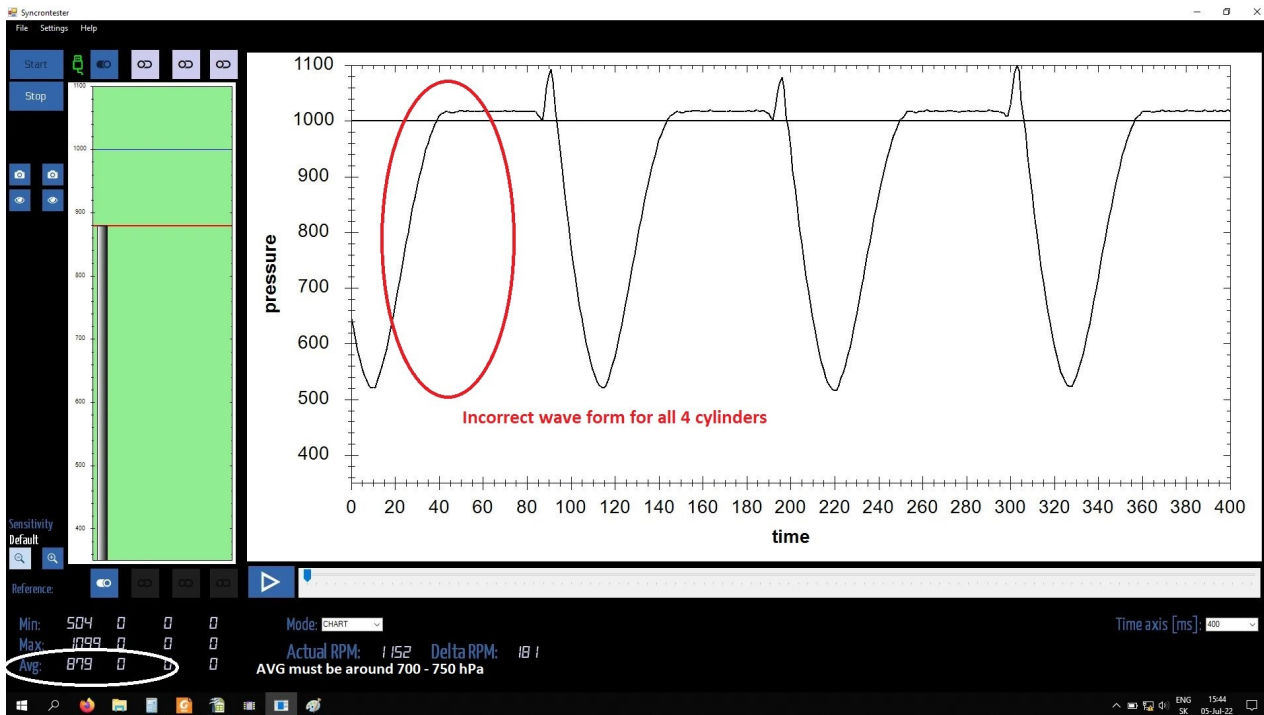
### Idle speed mixture monitoring:

NOTE: #2 #3 cylinders OEM setting more fuel. You can see the effect at IN&EX valves overlapping. More exhaust gases has more effect az intake port.



### Intake CAM retard:





NOTE: AVG too high 879 hPa, its means engine need so much air for idle speed. normally 700-750 hPa

Pressure suddenly goes back to ambient.

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