



# PRODUCTS CATALOG

- Engine tachometer
- Engine hourmeter
- Ignition checker
- Ignition indicator
- First fire

Oppama Industry Co., Ltd. developed the non-contact tachometer for the first time in the world in 1980.

Highly accurate measurement can be performed simply by bringing the tachometer close to the spark plug cord.

Ignition signal is detected and power is turned on and off automatically (auto on / off function)  
 Battery (built-in) life is about 20,000 hours (7 hours when used 3 hours a day)

Use

Carburetor and idling speed adjustment.

The carburetor changes with temperature, atmospheric pressure, and replacement of intake and exhaust system parts.

We recommend the adjustment method recommended by the manufacturer in order to use it in the optimal condition.

You can expect to avoid engine failure and improve fuel efficiency.

Engine speed adjustment for work etc.

Adjustment of exhaust gas, volume, generator output, etc. based on the number of revolutions.

You can perform the advanced maintenance and maintenance described in the service manual.



Non-contact measurement



Carburetor adjustment

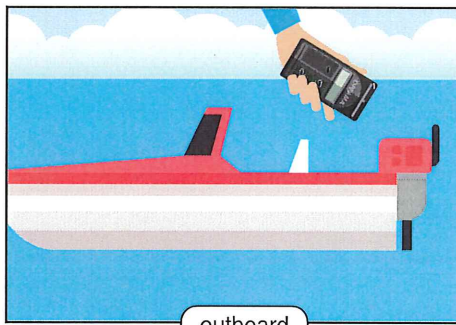
## Example of use

Our devices can be used for all kinds of gasoline engines, like mowers, outboard motor, jet skis, motorcycles, and so forth.

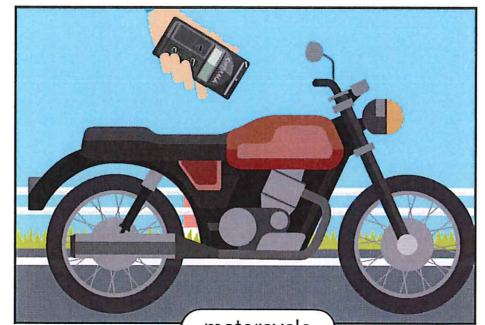
\*Excludes direct ignition engines



brushcutters



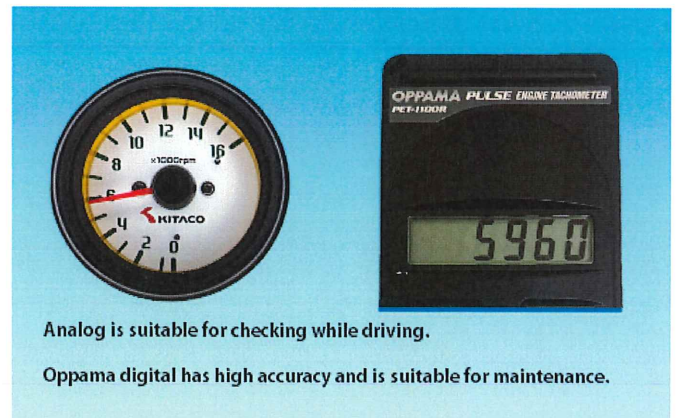
outboard



motorcycle

• On-board type mounting example

• Analog tachometer & Digital tachometer



Analog is suitable for checking while driving.

Oppama digital has high accuracy and is suitable for maintenance.

### ⚠ warning

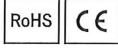
When the unit is fixed or the antenna lead wires are wired, it may affect engine operation. Please be sure to check that there is not. There is a risk of serious accident.

The number of revolutions cannot be judged by the sound of the engine. Please use an appropriate measuring instrument.

# Engine Tachometer



## Handy type



A thin, pocket-sized tachometer.  
Easy switching of position (measurement engine).  
A type that pursues ease of use and operability.  
Includes antenna lead wire and hanging string.

## DET-610R

2stroke 1~4cylinder  
4stroke 1~6, 8cylinder  
You can measure gasoline engines.  
With clock function and solar cell.



## PET-1100R

2stroke 1~4cylinder  
4stroke 1~6, 8cylinder  
You can measure gasoline engines.

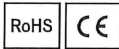


## PET-1000R

2stroke 1, 2cylinder  
4stroke 2, 4cylinder  
and 1 revolution 1 fire  
You can measure gasoline engines.



## Mounted type



Compact size tachometer.  
Convenient for mounting around the engine.  
It is a type with integrated time display and daily waterproof function.  
Antenna lead wire included.  
PET-2100DXR and -2000DXR are provided with hook-and-loop fasteners.

•PET-2100RXR,-2000DXR function

You can measure the engine speed, total time (2 types), and maximum speed.

It has a dual display function that simultaneously displays the rotation speed and the maximum rotation speed.

## PET-2100DXR

2stroke 1~4cylinder  
4stroke 1~6, 8cylinder  
You can measure gasoline engines.



## PET-2000DXR

2stroke 1, 2cylinder  
4stroke 2, 4cylinder  
and 1 revolution 1 fire  
You can measure gasoline engines.



## PET-304

2stroke 1cylinder, 4stroke 2cylinder and 1 revolution 1 fire  
You can measure gasoline engines.  
After measuring the number of revolutions, the accumulated total time is automatically displayed.  
A simple tachometer without buttons.



•Position display (engine to measure)



© The position of PET-304 cannot be switched.

### •Auto on / off function

There is no need to operate the power supply before and after measurement.(Excluding DET-610R \* 1 Standard on tachometer)  
(Excluding DET-610R \* 1 Standard on tachometer)

When the ignition signal is detected (engine started), the power of the tachometer is automatically turned on and the rotation speed is displayed.

Approximately 1 minute after the ignition signal is not input (after the engine is stopped), the tachometer power is automatically turned off.

\* 1 DET-610R automatically displays the clock about 1 minute after the ignition signal is not input.

# Other equipment gauges

Explanation of pictograph mark

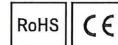
**RoHS** Parts found in this product do not include hazardous substances as defined by the European Union's Restriction of Hazardous Substances (RoHS) regulations.

**CE** This product was designed to comply with EU product safety regulations.

## Engine hourmeter

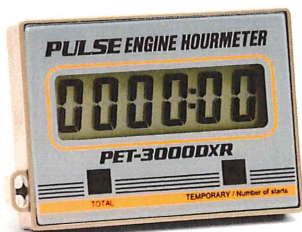


It detects the ignition signal of the gasoline engine and displays the operating time of the engine. Please use it as a guide for engine oil and parts replacement time. A daily life waterproof type that is convenient for mounting around the engine. Includes antenna lead wire and hook-and-loop fastener.



### PET-3000DXR

With "OIL" display function to notify oil change every 100 hours.  
Temporary accumulated time (can be reset)  
Cumulative total time (cannot be reset)  
With start-up frequency display function  
Antenna lead wire(1.2m)included.



### PET-3200R

extremely small  
Weighing model  
Cumulative total time (can be reset)  
Antenna lead wire(1.2m)included.



## Ignition checker



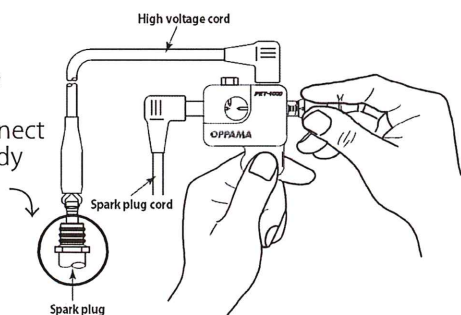
### PET-4000



This is a three-wire spark inspection device for gasoline engine ignition. Allows for easy failure diagnosis without the need to detach magnetic equipment from the engine. Spark gap(standard:6mm) can be adjusted as needed (0-12mm).  
Dimensions (L×W×H)  
83×124×20mm  
High voltage cord (350mm) included.



The illustration is connected to the spark plug. You can also connect to the engine body ground.



**!** Improper wiring may result in electric shock or engine failure. Please connect so that the wiring does not come off due to engine vibration. Contacting the spark plug with the engine body ground without using the ignition checker presents a risk of electric shock.

## Ignition indicator



### PET-4100



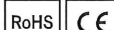
Simply place this device near the spark plug cord to detect sparks. Displays a lit blue LED when it detects the spark pulse.  
Dimensions (L×W×H)  
25×68×6mm  
(Excluding the keyholder part)



## First fire



### PET-4200



Those who use an engine where it is difficult to judge the first firing sound(※2), Recommended for those who use engine less frequently. The green LED will inform you when to reset the choke when the engine starts. You can easily check the ignition system with the orange LED.  
Dimensions (L×W×H)  
40×70×30mm  
With convenient clip  
◎Sold separately:  
Antenna lead wire (1.2m)



### ※2What is the "first firing sound"?

When starting your engine with a recoil starter, you close the choke before pulling the recoil starter. This triggers an explosive ignition as the engine makes a revving sound; this is called the "first firing sound". With some engines, it's very hard to figure out when to open the choke. If you open too late, you could douse your spark plug, and that'll make it even harder to start your engine. The PET-4200 senses the first firing sound electronically, notifying you with an LED lamp so that you can easily open the choke at the right time. It makes starting gasoline-powered engines a breeze.

## How to use tachometer

### In case of single cylinder engine

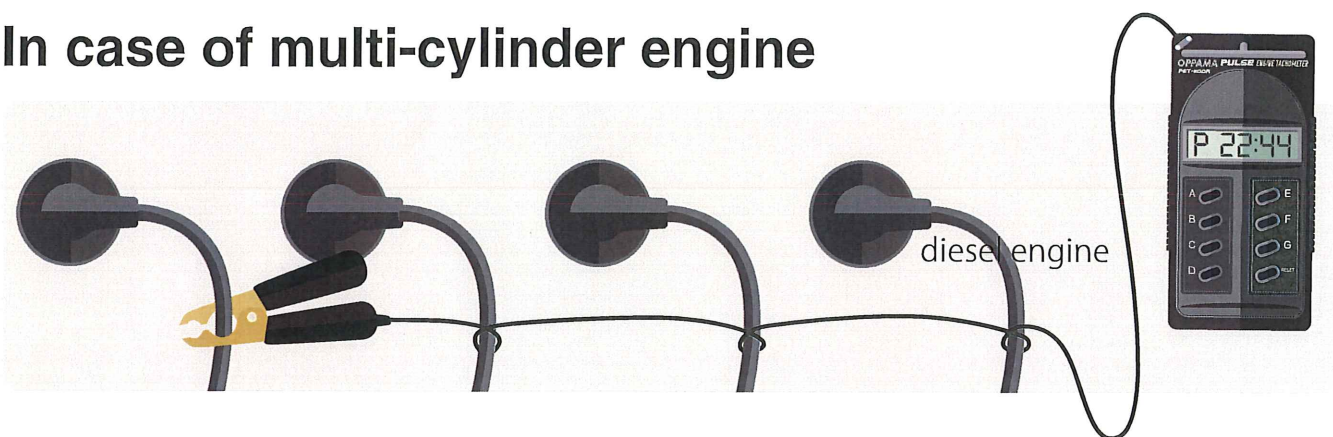
#### ● Non-contact method



#### ● Antenna lead method



### In case of multi-cylinder engine



#### Note

- Oppama products detect the signal when the gasoline engine is ignited. (Excluding PET-4000)  
It can be used for many gasoline engines, but the following types of engines cannot be measured.
  - diesel engine
  - Direct ignition type engine
  - Multi-ignition type engine equipped with ignition device  
(High voltage generated multiple times during one engine revolution)
  - High speed rotation over-rotation prevention area  
(Thinning ignition, etc. by preventing over-rotation etc)
- An engine equipped with an ignition device that is generating a fire (waste fire)  
The position setting changes.  
The 4-stroke engine ignition device generates a high voltage once every two revolutions to explode and burn.  
However, set the number of cylinders in half for an engine equipped with an ignition device that generates high voltage every time.  
EX : A 4-stroke 1-cylinder engine that generates high voltage every time can be measured in the 4-stroke 2-cylinder position.
- The position setting of the simultaneous ignition type engine changes.  
For a multi-cylinder engine that is simultaneously burning, set a large number of cylinders.  
EX : A 4-stroke 4-cylinder engine that simultaneously burns two cylinders alternately can be measured in a 4-stroke 2-cylinder position.

## Specification table

### Engine Tachometer Handy type

Model name function		DET-610R	PET-1100R	PET-1000R
RPM accuracy		±10r/min (4-stroke 1cylinder : ±20r/min)		
Measurable rotation range		100 ~ (r/min)		
2-stroke	1-cylinder	19,000	19,000	19,000
	2-cylinder	9,500	9,500	9,500
	3-cylinder	6,500	6,500	—
	4-cylinder	4,800	4,800	—
4-stroke	1-cylinder	19,980 ※ 1	19,980 ※ 1	19,980 ※ 1
	2-cylinder	19,000	19,000	19,000
	3-cylinder	13,000	13,000	—
	4-cylinder	9,500	9,500	9,500
	5-cylinder	7,000	7,000	—
	6-cylinder	6,500	6,500	—
	8-cylinder	4,800	4,800	—
Position table		○	○	—
Operating temperature range		0°C~+40°C	-10°C~+60°C	
Storage temperature range		-20°C~+60°C	-20°C~+60°C	
Waterproof property		—	—	—
Dimensions(L×W×H mm)		113×62×8.5	120×62×13	
Main body weight (g)		57	73	

### Engine Tachometer On-board type

Model name function		PET-2100DXR	PET-2000DXR	PET-304
RPM accuracy		±10r/min (4-stroke 1cylinder : ±20r/min)		
Measurable rotation range		100 ~ (r/min)		
2-stroke	1-cylinder	30,000	30,000	20,000
	2-cylinder	15,000	15,000	—
	3-cylinder	10,000	—	—
	4-cylinder	7,500	—	—
4-stroke	1-cylinder	30,000 ※ 1	30,000 ※ 1	20,000 ※ 1
	2-cylinder	30,000	30,000	20,000
	3-cylinder	20,000	—	—
	4-cylinder	15,000	15,000	—
	5-cylinder	12,000	—	—
	6-cylinder	10,000	—	—
	8-cylinder	7,500	—	—
Hour meter function		○	○	○
Temporary storage time		○	○	—
Cumulative total time		○	○	○
Temporary storage time reset		○	○	—
Cumulative total time		○	○	—
Operating temperature range		-20°C~+60°C		
Storage temperature range		-20°C~+60°C		
Waterproof property		Daily life waterproof		
Dimensions(L×W×H mm)		44×61×12	42×60×13	
Main body weight (g)		30	29	

### Engine Hourmeter

Model name function	PET-3000DXR	PET-3200R
Measurable engine	2,4stroke Total number of cylinders	
Speed range	100 ~ 30,000r/min ※2	
Cumulative total time	○	○
Reset total accumulated time	—	○
Temporary storage time	○	—
Temporary storage time reset	○	—
Notice every 100 hours	○	—
Auto on off	○	—
Number of boots	○	—
Reset number of boots	○	—
Battery life	About 20000 hours	About 5 years (From factory shipment)
Operating temperature range	-20°C~+60°C	-10°C~+60°C
Storage temperature range	-20°C~+60°C	-10°C~+60°C
Waterproof property	Daily life waterproof	
Dimensions(L×W×H mm)	113×62×8.5	30×30×15
Main body weight (g)	57	15

- ※1 In case of 1 revolution 1 ignition engine  
 ※2 For 2-stroke 1-cylinder engine



## Safety precautions

Please read the instruction manual carefully before use and use it correctly.

- At the time of purchase, please be sure to receive the "Warranty Card" in which the date of purchase, the store, etc. are filled in and keep it together with the receipt (receipt).
- Please note that the contents of this catalog are subject to change due to product improvements.



Please visit our website to view inquiries and instruction manuals.

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