



# PRODUCTS CATALOG

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

Since 1980,

**38** years



## of perennial favorites

Oppama was founded in 1974 in the city of Yokosuka, Japan as a designing and manufacturing firm dealing in ignition equipment for two-cycle engines.

In 1980, we developed a brand new type of engine tachometer, using a never-before-seen method for taking an ignition coil ignition signal and estimating an engine's RPMs.

It demonstrated Oppama's unique expertise as an ignition coil manufacturer.

Much has happened in the following 38 years.

Oppama continues to fundamentally reinvent itself in order to continue its technological innovation and build better tachometers, providing new value and new technology year after year to our customers.

As a result of our continuous effort to provide a highly precise, reliable, easy-to-use, and all-around quality product, our devices are now used in more than forty countries worldwide.

- 1980 Started sales of DET-101.
- 1984 Started sales of DET-102.
- 1987 Started sales of PET-1000, 2000, 3000 series.
- 1988 Started sales of PET-4000.
- 2004 Started sales of PET-3200.
- 2008 Started sales of PET-304, PET-4100.
- 2016 Started sales of PET-3000DXR.



▶ DET-101

# Mounted type

These tachometers boast water-resistant properties making them good for placement near engines. They're able to measure RPMs simply by being near the spark plug cord.\*Excludes direct ignition engines.

## Engine tachometer

### PET-302R



A simple, button-free tachometer that shows cumulative time after its RPM measurement.

Specifically designed for two-stroke one-cylinder, four-stroke two-cylinder, and spark-ignition engines.

※Antenna lead wire (1.2m) included.



### PET-304



A simple, button-free tachometer that shows cumulative time after its RPM measurement.

Specifically designed for two-stroke one-cylinder, four-stroke two-cylinder, and spark-ignition engines.

※Antenna lead wire (1.2m) included.



### PET-2000DXR



This tachometer is equipped with a dual-display that allows for simultaneous presentation of both RPMs and max RPMs. It also measures cumulative time.

Specifically designed for two-stroke one, two-cylinder, four-stroke two, four-cylinder, and spark-ignition engines.

※Antenna lead wire (1.2m) included.



### PET-2100DXR



This advanced tachometer expands on the functionality of the PET-2000DXR to support multi-cylinder engines.

Specifically designed for two-stroke with one to four-cylinder engines, four-stroke with one to six-cylinder engines, and eight-cylinder gasoline engines.



# Handy type

Light and portable, these are our handiest tachometers. They're able to measure RPMs simply by being near the spark plug cord.\*Excludes direct ignition engines.

## Engine tachometer

### PET-1000R



A standard tachometer, pocket-sized. Only 13mm thick and designed for easy use.

Specifically designed for two-stroke one, two-cylinder, four-stroke two, four-cylinder, and spark-ignition engines.

※Antenna lead wire (1.2m) included.



### PET-1100R



Our PET-1000R, evolved to support multi-cylinder engines. Allows for selection of seven positions. Specifically designed for two-stroke with one to four-cylinder engines, four-stroke with one to six-cylinder engines, and eight-cylinder gasoline engines.

※Antenna lead wire (1.2m) included.



### DET-610R



"Supports multi-cylinder engines. Features a clock function and solar-powered batteries (included). Specifically designed for two-stroke with one to four-cylinder engines, four-stroke with one to six-cylinder engines, and eight-cylinder gasoline engines.

※Antenna lead wire (1m) included."



Helps in maintaining, inspecting, and tuning up your engines!



# 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

### PET-3000DXR



This hour meter detects a gasoline engine's ignition signal and displays run time.

Its dual display shows both total engine run time (which cannot be reset) and the temporary run time (can be manually reset).

Displays "OIL" (maintenance required) when run time exceeds 100 hours.



### PET-3200R



This ultra-compact hour meter calculates total engine run time, and is helpful for estimating timing for engine oil and parts replacement.

※Antenna lead wire (1.2m) included.



## Ignition checker

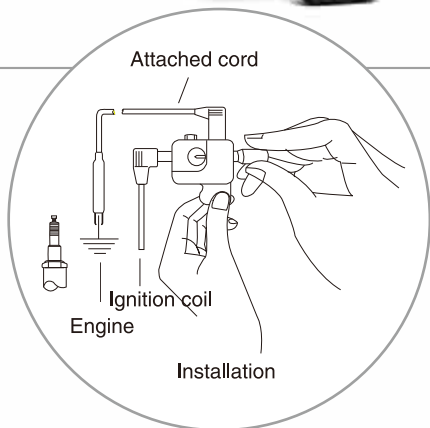
### PET-4000



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 (LxWxH) : 83x124x20mm



## 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 (LxWxH) : 25x68x6mm (Excluding the key holder part)



## First fire

### PET-4200



Detects the engine's first firing sound\*, notifies the user when to return the choke, and displays the electricity supply status to the spark plug by lighting LEDs (two colors).

※Antenna lead (1.2m) sold separately

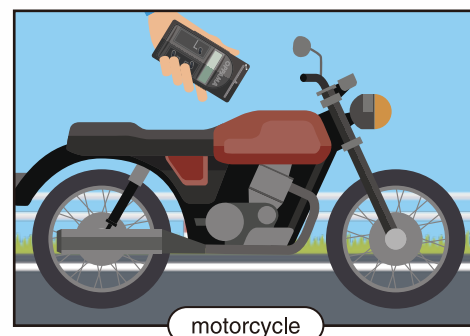
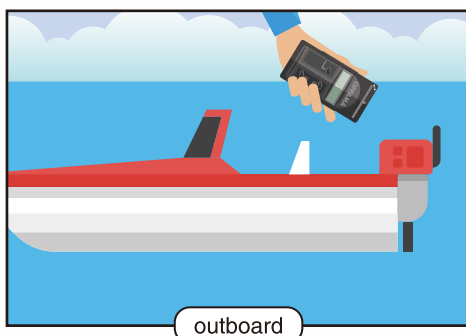
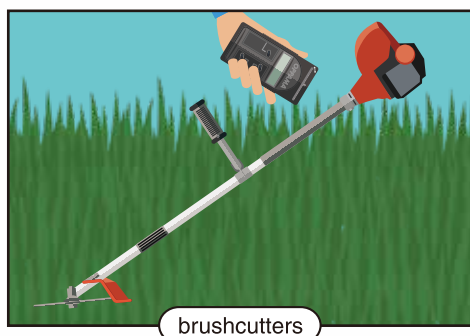
\* See the reverse side of the page for more about the first firing sound.



## Example of use

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

※Excludes direct ignition engines



See the specifications table (reverse side) for more about each product.

# What 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.

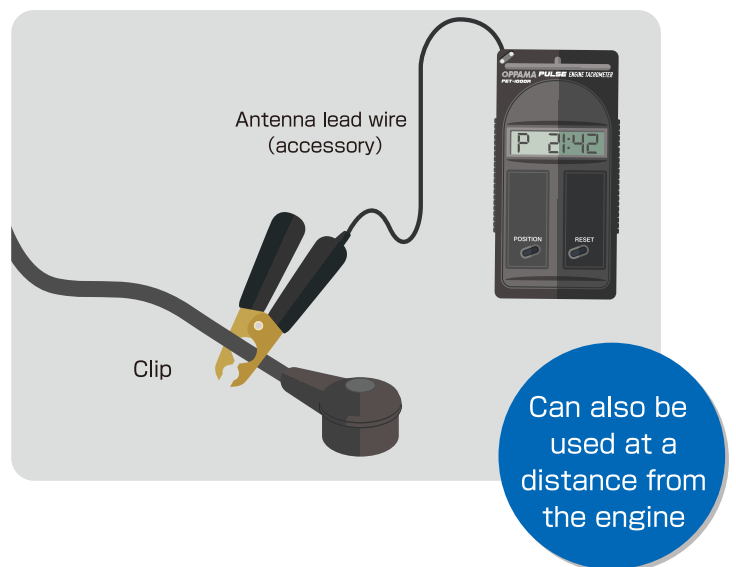
## How to use tachometer

### In case of single cylinder engine

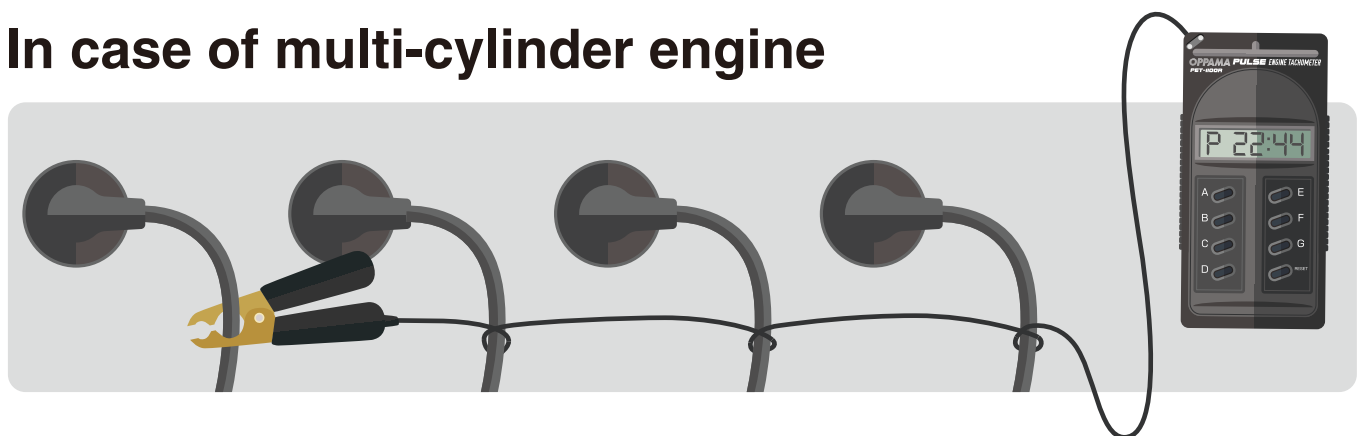
#### ● Non-contact method



#### ● Antenna lead method



### In case of multi-cylinder engine



※For gasoline engines only. (The direct ignition type engine is excluded.)

Specifications List	Mounted type tachometer				Handy type tachometer			Hourmeter		
Model name	PET-302R	PET-304	PET-2000DXR	PET-2100DXR	PET-1000R	PET-1100R	DET-610R	PET-3000DXR	PET-3200R	
Measurable engine (direct ignition engine is excluded)	2-stroke 1-cylinder, 4-stroke 2-cylinder	2-stroke 1-cylinder, 4-stroke 2-cylinder	2-stroke 1+2-cylinder, 4-stroke 2+4-cylinder	2-stroke 1 to 4-cylinder, 4-stroke 1 to 6, 8-cylinder	2-stroke 1+2-cylinder, 4-stroke 2+4-cylinder	2-stroke 1 to 4-cylinder, 4-stroke 1 to 6, 8-cylinder	2-stroke 1 to 4-cylinder, 4-stroke 1 to 6, 8-cylinder	2+4-stroke all cylinders	2+4-stroke all cylinders	
Hourmeter	○	○	○	○	—	—	—	○	○	
Temporary storage time	—	—	○	○	—	—	—	○	—	
Cumulative accumulated time	○	○	○	○	—	—	—	○	○	
Hourmeter reset	—	—	○	○	—	—	—	○	○	
Measurement of max. rotation frequency	—	—	○	○	—	—	—	—	—	
Auto-on	When engine ignition pulses are received								Always on	
Auto-off	When no ignition pulses are received for one minute								Always on	
Watch (Accuracy)	—	—	—	—	—	—	Be accurate within 2 seconds per day	—	—	
Internal battery	Lithium battery									
Solar battery	—	—	—	—	—	—	Amorphous	—	—	
Battery life	Approx. 20,000 hours								Approx. 5 years (since the shipment from manufacturer)	
RPM display interval	0.5 sec								—	—
RPM accuracy	±10 r/min(4-stroke 1-cylinder : ±20 r/min)								—	—
Measurable rotation range	100~(r/min)								—	—
2-stroke	1-cylinder	30,000	20,000	30,000	30,000	19,000	19,000	19,000	—	—
	2-cylinder	—	—	15,000	15,000	9,500	9,500	9,500	—	—
	3-cylinder	—	—	—	10,000	—	6,500	6,500	—	—
	4-cylinder	—	—	—	7,500	—	4,800	4,800	—	—
4-stroke	1-cylinder	30,000*	20,000*	30,000*	30,000	19,980*	19,980	19,980	—	—
	2-cylinder	30,000	20,000	30,000	30,000	19,000	19,000	19,000	—	—
	3-cylinder	—	—	—	20,000	—	13,000	13,000	—	—
	4-cylinder	—	—	15,000	15,000	9,500	9,500	9,500	—	—
	5-cylinder	—	—	—	12,000	—	7,000	7,000	—	—
	6-cylinder	—	—	—	10,000	—	6,500	6,500	—	—
8-cylinder	—	—	—	7,500	—	4,800	4,800	—	—	
Operating temperature range	-20°C~+60°C				-10°C~+60°C			0°C~+40°C	-20°C~+60°C	-10°C~+60°C
Storage temperature range	-20°C~+60°C				-20°C~+60°C			-20°C~+60°C	-20°C~+60°C	-10°C~+60°C
Waterproof property	Daily life waterproof				—	—	—	Daily life waterproof		
Dimensions (L×W×H)	44×61×12	42×60×13	44×61×12		120×62×13			113×62×8.5	44×61×12	30×30×15
Main body weight (g)	30	29	30		73			57	31	15
Accessories	Antenna lead wire (1.2m) Hook and loop fastener	Antenna lead wire (1.2m)	Antenna lead wire (1.2m) Hook and loop fastener		Antenna lead wire (1.2m) Hang strap			Antenna lead wire (1m) Hang strap	Antenna lead wire (1.2m) Hook and loop fastener	Antenna lead wire (0.5m) Hook and loop fastener

\* Use the two-stroke one-cylinder position for taking measurements from four-stroke one-cylinder engines that use the wasted spark system.

Normal four-stroke engines have spark plugs firing once every two cycles, but some small general-use engines and agricultural engines use a second spark plug firing on the exhaust stroke in order to eschew the machinery detecting the top-dead-center of the compression process. This system where an additional spark fires in the exhaust process is called the wasted spark system.

Two-stroke spark timings (red)	Up stroke (Compression / Combustion) → Down stroke (Exhaust / Intake)	One spark per two-stroke
Four-stroke spark timings (red)	Intake (Air-fuel mixture is drawn in) → Compression (Air-fuel mixture is compressed) → Power (Explosion forces piston down) → Exhaust (Piston pushes out burned gases)	One spark per four-stroke
Four-stroke spark timings with wasted spark (red)	Intake (Air-fuel mixture is drawn in) → Compression (Air-fuel mixture is compressed) → Power (Explosion forces piston down) → Exhaust (Piston pushes out burned gases)	Two sparks per four-stroke

Please be sure to confirm your engine's spark timing before setting the position. Oppama Kogyo's tachometers detect spark plug ignition signals and measure RPMs.



**OPPAMA's tachometer / hourmeter are all designed and manufactured in Japan.**

● Actual producer

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● Distributor

※ Information contained in this catalog may change without warning.

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