

ONOSOKKI

Gasoline & diesel engines, EV & HEV motors

Handheld Digital Tachometer

# HT-6200

External sensor input type



DIGITAL  
HANDY  
TACHOMETER

# HT-6200

All in one model for measuring gasoline/diesel engines and EV/HEV motors!

Three types of output (analog, pulse and monitor) for recording and tracking analysis of rotation.

## Features

### 1 Can be used with various sensors

Various types of rotation sensors can be connected. Rotation measurement of gasoline engines, diesel engines and motors can be performed in one tachometer.

### 2 Three outputs provided as standard

Analog output : For recording of rotation speed  
Pulse output : For synchronous signal with rotation  
Monitor output : For checking a detected signal

### 3 Built-in peak-hold function

Max. and Min. values can be displayed during measurement.

### 4 Built-in memory function

Up to 20 data can be stored.



## Specification

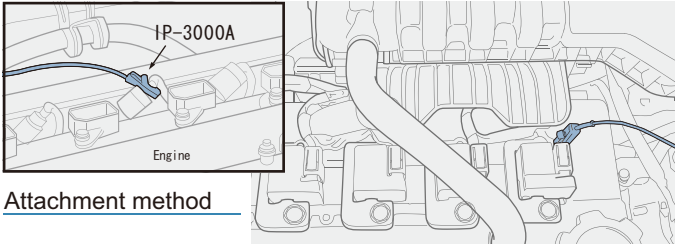
<b>Object to be measured</b>	Engines, motors and general rotating objects	
<b>Display</b>	5-digit LCD with backlight (character height: 10.2 mm)	
<b>Calculation method</b>	Periodic operation method	
<b>Measurement time</b>	1 s+1 period	
<b>Measurement accuracy</b>	Displayed value* x (±0.02%) ±1 count * The displayed value is the count value excluding figures after the decimal point. The measurement accuracy of the line speed depends on the accuracy of rotation speed (r/min).	
<b>Setup range of number of pulses (P/R)</b>	0.50 to 200.00 (engine rotation measurement) 0.50 to 999.99 (other than engine rotation measurement) (Can be set in 0.01)	
<b>Measurement function</b>	<b>Peak-hold function</b>	Maximum value (MAX), Minimum value (MIN)
	<b>Memory function</b>	Up to 20 data
	<b>Over-range function</b>	The over-range warning (ERROR mark) is displayed when the measured value exceeds the display range.
	<b>Rotation upper limit warning function</b>	The upper limit warning (↑ mark) is displayed when the rotation speed exceeds the preset upper limit value.
	<b>Line speed calculation function</b>	Calculates the line speed from the preset diameter value (mm) and the measured rotation speed.
	<b>Accumulating function</b>	Count accumulated pulses of input signal
	<b>Period measurement function</b>	Measures the input pulse period (1 second or less: average value of input pulse)
<b>Trigger level adjustment function</b>	Trigger level can be adjusted using a rotary dial at the right-hand side of the main unit.	
<b>Output section</b>	<b>Connector</b>	φ2.5 mini-mini jack
	<b>Analog output</b>	<b>Output content</b> Output to the display value of rotation speed
	<b>Output voltage</b>	0 to 1 V/0 to F.S. (F.S. can be specified.)

<b>Analog section</b>	<b>Conversion method</b>	10-bit D/A conversion method
	<b>Linearity</b>	±1 % / F.S.
	<b>Output update time</b>	50 ms + Input signal one-period time or less
	<b>Temperature stability</b>	± 0.05 % / F.S./ °C (ZERO & SPAN)
	<b>Setting error</b>	±0.5 % / F.S.
<b>Monitor output</b>	<b>Load resistance</b>	100 kΩ or more
	<b>Output content</b>	Detected signal of a sensor (available by switching analog output.)
	<b>Load resistance</b>	100 kΩ or more
<b>Pulse output</b>	<b>Output voltage</b>	Hi level: +4.5 V or more Lo level: +0.5 V or less
	<b>Output logic</b>	Positive logic pulse
	<b>Load resistance</b>	100 kΩ or more
<b>General specification</b>	<b>Power supply</b>	Type AAA battery (x 4) or exclusive AC adapter (PB-7090 sold separately)
	<b>Continuous operating time</b>	16 hours or more (backlight OFF) 8 hours or more (backlight ON) *When alkaline batteries are used at 21 °C.
	<b>Battery LOW display</b>	Lights up at about 4.5 V ("LOW" will be displayed.)
	<b>Operating temperature range</b>	0 to +40°C
	<b>Storage temperature range</b>	-10 to +50°C
	<b>Outer dimensions</b>	47.5(W)×189.5(L)×66(D) mm
	<b>Weight</b>	Approx. 280 g (including batteries)
	<b>Accessories</b>	Type AAA battery x 4, carrying case x 1, Instruction manual x 1

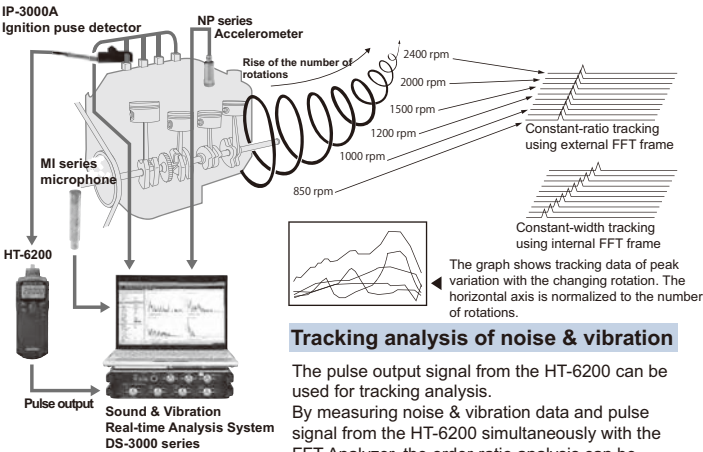


# Applications

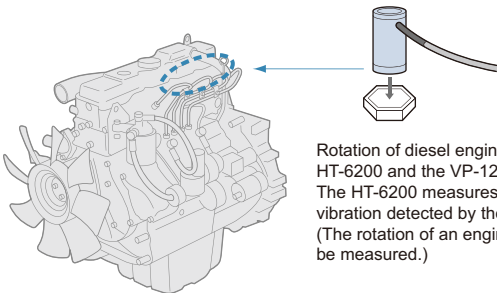
## Measuring rotation of gasoline engines



The rotation of gasoline engines can be measured using the IP-3000A (Ignition pulse detector) and the HT-6200 (Handheld digital tachometer). The IP-3000A is attached on an ignition cable.

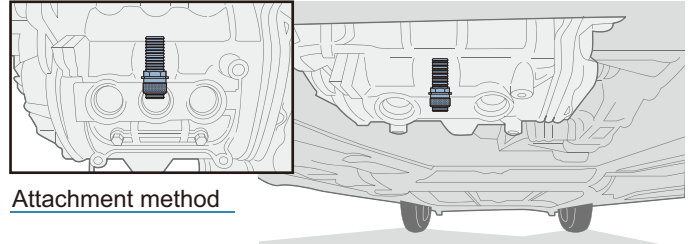


## Measuring rotation of diesel engines

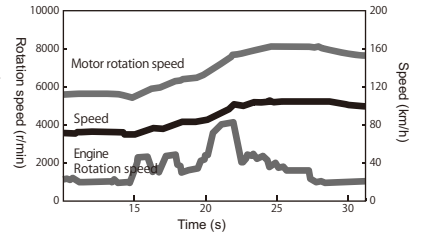


Rotation of diesel engines can be measured by using the HT-6200 and the VP-1220 (rotation vibration sensor). The HT-6200 measures engine rotation using the engine vibration detected by the VP-1220. (The rotation of an engine with 6 or more cylinders may not be measured.)

## Measuring motor rotation of EV/HEV



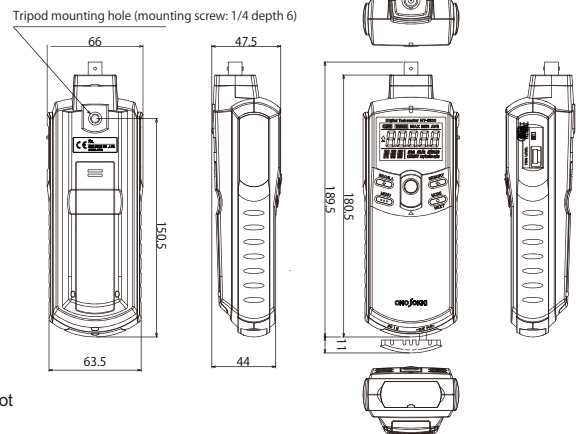
The OM-1200 (ignition pulse detector) detects the magnetic flux leakage from a motor and enables rotation measurement of EV/HEV. Just attach the sensor on outside of the motor to measure the rotation. Any processing such as hole drilling is required. The OM-1200 is installed perpendicularly to the rotating shaft of the motor. It needs to set the number of poles (number of pulses P/R) for HT-6200.



### Actual running test of HEV

The above graph shows the rotation speed of a motor and an engine in HEV (measured by two HT-6200), and the speed of HEV (measured by the LC-8100 GPS speedometer).

### <Outer Dimensions> (unit: mm)



	Gasoline engine	Diesel engine	Motor (EV, HEV)	General rotating object
Applicable detector	<ul style="list-style-type: none"> <li>Ignition pulse detector: IP-296/292/3100/3000A</li> <li>Motor/gasoline engine RPM detector: OM-1200</li> <li>Engine vibration detector: VP-1220</li> </ul>	<ul style="list-style-type: none"> <li>Ignition pulse detector: IP-296/292/3100/3000A</li> <li>Motor/gasoline engine RPM detector: OM-1200</li> <li>Engine vibration detector: VP-1220</li> </ul>	<ul style="list-style-type: none"> <li>Motor/gasoline engine RPM detector: OM-1200</li> </ul>	<ul style="list-style-type: none"> <li>Electromagnetic rotation detector MP-900/9000 series</li> </ul>
Object to be measured	<ul style="list-style-type: none"> <li>Primary and secondary coils of an ignition</li> <li>ECU rotation pulse (5V)</li> <li>Cylinder-head of an engine (VP-1220 in used)</li> </ul>	<ul style="list-style-type: none"> <li>ECU rotation pulse (5V)</li> <li>Cylinder-head of an engine (VP-1220 in used)</li> </ul>	<ul style="list-style-type: none"> <li>Motor</li> </ul>	<ul style="list-style-type: none"> <li>Rotation detection gear</li> </ul>

	Rotation measurement of gasoline/diesel engines	Rotation measurement other than engines
Measurement unit	r/min (rotation speed)	r/min, r/s (rotation speed), m/min (line speed), ms (period), COUNT (accumulated count)
Input frequency range	1 to 1666.67 Hz	3.33 to 1666.67 Hz
Maximum measurement value	20,000 r/min The maximum rotation speed is 20,000 r/min regardless of the number of pulses per one rotation (P/R).	99999 r/min (P/R=1), 999.99 r/s (P/R=1) 9999.9 m/min (diameter = 100 mm), 300 (ms), 99999 (COUNT) The maximum value varies depending on the number of pulses per one rotation.

- ※ The measurement range may be changed depending on measurement objects.
- ※ The measurement range may be changed depending on the sensor installation position or type of motor when the motor rotation is measured using the OM-1200.
- ※ The measurement may not be performed normally depending on type of a motor, type of an engine or other reason. Please contact your nearest distributor for more details.

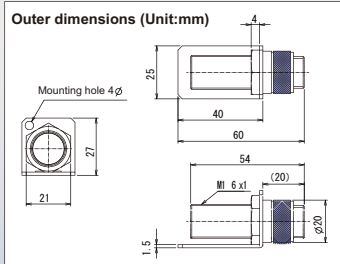
## Option

For measuring EV/HEV motor rotation

OM-1200 (sensor)  
OM-0102 (mounting fixture)



Sensor with a mounting fixture



Motor/gasoline engine RPM detector  
OM-1200



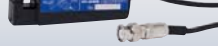
Electromagnetic rotation detector  
MP series



Ignition pulse detector (primary side)  
IP-292



Ignition pulse detector (Secondary side)  
IP-296



Ignition pulse detector  
IP-3000A



Ignition pulse detector  
IP-3100



Engine vibration detector  
VP-1220



AC adapter  
PB-7090



## Main unit

HT-6200 Handheld Digital Tachometer

### Sensor (sold separately)

VP-1220 Engine vibration detector  
IP-292 Ignition pulse detector  
IP-296 Ignition pulse detector  
IP-3000A Ignition pulse detector  
IP-3100 Ignition pulse detector  
OM-1200 Motor/gasoline engine RPM detector  
MP series Electromagnetic rotation detector

### Accessory (sold separately)

AX-501 Signal output cable  
(for analog and pulse output)  
2.5φ mini-mini plug ~CO2 (BNC) 2 m

MX series Cable for electromagnetic rotation detector  
(for OM-1200, MP series)  
MX-005 5m  
MX-010 10m

OM-0102 Mounting fixture for OM-1200  
(with 3 of adhesive sheet)

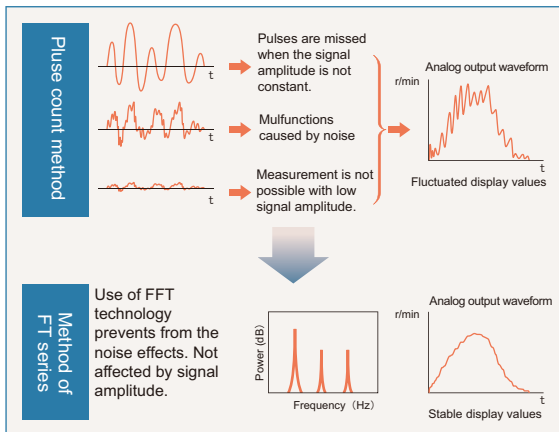
PB-7090 AC adapter  
Input: AC100 to 240V  
Output: DC 5.9V/3.5A  
(AC adapter for AC100 to 120 V: Provided as standard)

## For stable measurement High precision type FT-7200 Advanced Tachometer

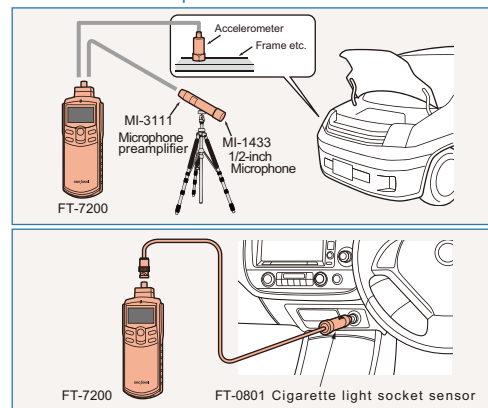


FT-7200

The FT-7200 is a Handheld type Tachometer which measures the rotation speed by performing frequency analysis using FFT calculation. This tachometer is useful for measurement of sensor signal with noise or small amplitude.



### Measurement example



Cigarette light socket sensor  
FT-0801

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**ONOSOKKI**

WORLDWIDE ONO SOKKI CO., LTD.

1-16-1 Hakusan, Midori-ku, Yokohama, 226-8507, Japan  
Phone : +81-45-935-3918 Fax : +81-45-930-1808  
E-mail : overseas@onosokki.co.jp

\* Outer appearance and specifications are subject to change without prior notice.  
URL : <http://www.onosokki.co.jp/English/english.htm>

**U.S.A**  
Ono Sokki Technology Inc.  
2171 Executive Drive, Suite 400  
Addison, IL. 60101 U.S.A  
Phone : +1-630-627-9700  
Fax : +1-630-627-0004  
E-mail : info@onosokki.net  
<http://www.onosokki.net>

**P.R.CHINA**  
Ono Sokki Beijing Office  
Beijing Jing Guang Center 3510  
Hu Jia Lou, Chao Yang Qu  
Beijing 100020, P.R.China  
Phone : +86-10-6597-3113  
Fax : +86-10-6597-3114  
E-mail : onosokki@bnn.cn

**THAILAND**  
Ono Sokki (Thailand) Co., Ltd.  
29/67 Moo 5 Tivanon Road, Pakkred,  
Nonthaburi 11120, Thailand  
Phone : +66-2-964-3884  
Fax : +66-2-964-3887  
E-mail : osth\_sales@onosokki.co.jp

**INDIA**  
Ono Sokki India Private Ltd.  
Unit No. 4B, Ground Floor, Tower-A, Spazedge,  
Sector47, Gurgaon-Sohna Expressway, Gurgaon,  
Haryana-122002, INDIA  
Phone : +91-124-421-1807  
Fax : +91-124-421-1809  
E-mail : osid@onosokki.co.in