

Gasoline & diesel engines, EV & HEV motors
Handheld Digital Tachometer

HT-6200

External Sensor Input Type



ONOSOKKI

Handheld Digital Tachometer

HT-6200

Advanced model of the HT-6100

Not just measuring gasoline/diesel engine rotation but motor rotation of EV/HEV !

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

Three types of output (analog, pulse and monitor) for recording and for 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 with one tachometer.

2 Three outputs provided as standard

Analog output : For recording rotation speed
Pulse output : For synchronous signal with rotation
Monitor output : For checking detected signals.

3 Built-in peak-hold function

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

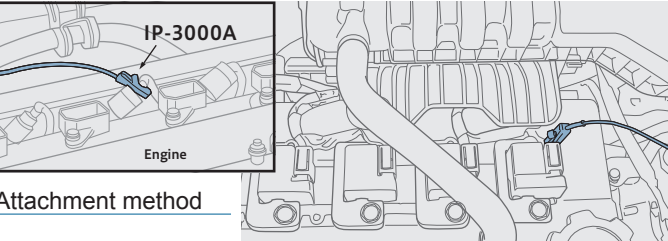
4 Built-in memory function

Up to 20 data can be stored.

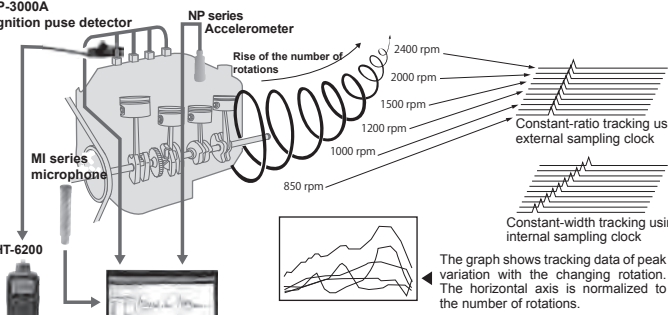


Applications

Measuring rotation of gasoline engines



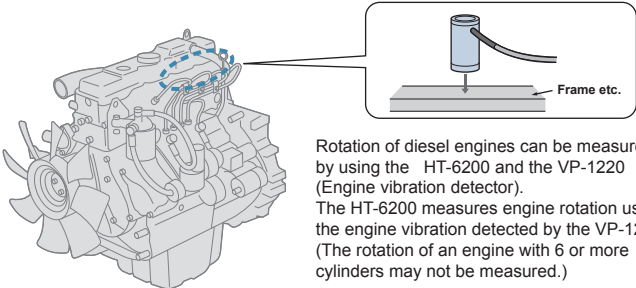
The rotation of gasoline engines can be measured using the IP-3000A (Ignition pulse detector) and the HT-6200 (Handheld digital tachometer). The IP-3000A is attached on an ignition cable.



Tracking analysis of noise & vibration

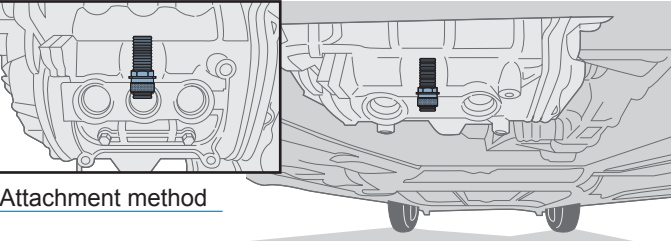
The pulse output signal from the HT-6200 can be used for tracking analysis. By measuring noise & vibration data and pulse signal from the HT-6200 simultaneously with the FFT Analyzer, the order-ratio analysis can be performed.

Measuring rotation of diesel engines

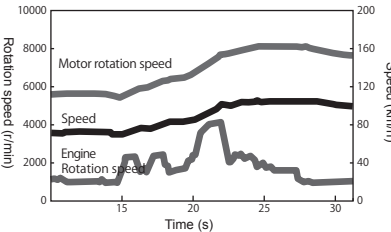


Rotation of diesel engines can be measured by using the HT-6200 and the VP-1220 (Engine vibration detector). The HT-6200 measures engine rotation using the engine vibration detected by the VP-1220. (The rotation of an engine with 6 or more cylinders may not be measured.)

Measuring motor rotation of EV/HEV



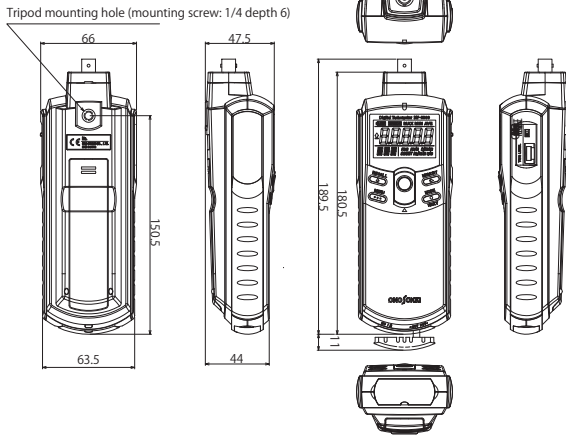
The OM-1200 (Motor/gasoline engine RPM detector) detects the magnetic flux leakage from a motor and enables rotation measurement of EV/HEV. Just attach the sensor to the outside of the motor to measure rotation. No processing such as hole drilling is required. The OM-1200 is installed perpendicularly to the rotating shaft of the motor. It needs to set the number of poles (number of pulses P/R) for the 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's), and the speed of HEV (measured by the LC-8100 GPS speedometer).

Outer Dimensions (unit: mm)



Specifications

Object to be measured	Engines, motors and rotating objects in general	
Display	5-digit LCD with backlight (character height: 10.2 mm)	
Calculation method	Periodic operation method	
Measurement time	1 s+1 period	
Measurement accuracy	Displayed value x (±0.02 %) ±1 count (Not including a quantization error) The measurement accuracy of the circumferential speed depends on the accuracy of rotation speed (r/min).	
Setup range of number of pulses (P/R)	0.50 to 200.00(engine rotation measurement) 0.50 to 999.99(other than engine rotation measurement) (Can be set at intervals of 0.01)	
Measurement function	Peak-hold function	Maximum value (MAX), Minimum value (MIN)
	Memory function	Up to 20 data
	Over-range function	The over-range warning (ERROR mark) is displayed when the measured value exceeds the display range.
	Rotation upper limit warning function	The upper limit warning (↑ mark) is displayed when the rotation speed exceeds the preset upper limit value.
	Circumferential speed calculation function	Calculates the circumferential speed from the preset diameter value (mm) and the measured rotation speed.
	Accumulation function	Counts accumulated pulses of input signal
Output section	Period measurement function	Measures the input pulse period (When 1 second or less: average value of input pulse)
	Trigger level adjustment function	Trigger level can be adjusted using a rotary dial at the right-hand side of the main unit.
	Connector	φ2.5 sub-mini jack
Output section	Connector	φ2.5 sub-mini jack
	Output content	Output to the display value of rotation speed
Output section	Output content	Output to the display value of rotation speed
	Output voltage	0 to 1 V/0 to F.S. (F.S. can be specified.)

Output section	Conversion method	10-bit D/A conversion method
	Linearity	±1 %/F.S.
	Output update time	within 50ms + 1 period
	Temperature stability	± 0.05 % / F.S./ °C (ZERO & SPAN)
	Setting error	±0.5 %/F.S.
	Load resistance	100 kΩ or more
Monitor output	Output content	Detected signal of a sensor (available by switching from analog output.)
	Load resistance	100 kΩ or more
	Output voltage	High level: +4.5 V or more Low level : +0.5 V or less
	Output logic	Positive logic pulse
	Load resistance	100 kΩ or more
	Power supply	Size AAA battery (x 4) or exclusive AC adapter (PB-7090 sold separately)
Pulse output	Continuous operating time	16 hours or more (backlight OFF) 8 hours or more (backlight ON) *When alkaline batteries are used at 20 °C.
	Battery LOW display	Lights up at about 4.4 V("LOW" will be displayed.
	Operating temperature range	0 to +40 °C
	Storage temperature range	−10 to +50 °C
	Outer dimensions	47.5(W)×189.5(L)× 66(D) mm
	Weight	Approx. 280 g (including batteries)
General specifications	Accessories	Size AAA battery x 4, carrying case x 1, Instruction manual x 1

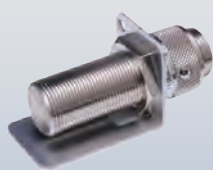
	Gasoline engine	Diesel engine	Motor (EV, HEV)	Rotating object in general
Applicable detector	• Ignition pulse detector: IP-296/292/3100/3000A • Motor/gasoline engine RPM detector: OM-1200/1500 • Engine vibration detector:VP-202/1220	• Engine vibration detector:VP-202/1220	• Motor/gasoline engine RPM detector: OM-1200/1500	• Electromagnetic rotation detector MP-900/9000 series
Object to be measured	• Ignition coil, primary/secondary ignition cables • ECU rotation pulse (5V) • Cylinder-head of an engine (When using the VP-202/1220)	• Cylinder-head of an engine (when using the VP-202/1220)	• Motor	• Rotation detection gear

	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 (circumferential 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.

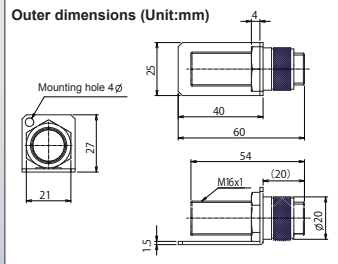
※ The measurement range may be changed depending on measurement objects.
※ The measurement range may be changed depending on the sensor installation position or type of motor when the motor rotation is measured using the OM-1200.
※ The measurement may not be performed normally depending on type of a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

Options

For measuring EV/HEV
motor rotation
OM-1200 (detector)
OM-0102 (mounting fixture)



Detector with a mounting fixture



Motor/gasoline engine
RPM detector
OM-1200/1500



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-202/1220



AC adapter
PB-7090



Main unit

HT-6200 Handheld Digital Tachometer

Sensors (sold separately)

VP-202/1220 Engine vibration detector
IP-292/296 Ignition pulse detector
IP-3100/3000A Ignition pulse detector
OM-1200/1500 Motor/gasoline engine RPM detector
MP series Electromagnetic rotation detector

Accessories (sold separately)

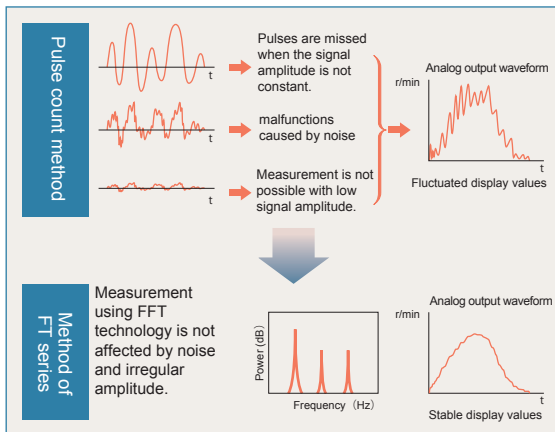
AX-501 Signal output cable
(for analog and pulse output)
2.5φ sub-mini plug to CO2 (BNC), 2m
MX series Cable for electromagnetic rotation detector
(for OM-1200, MP series)
MX-005 5m
MX-010 10m
OM-0102 Mounting fixture for OM-1200
(with 3 of adhesive sheet)
PB-7090 AC adapter
Input: 100 to 240V AC
Output: 5.9V DC/3.5A
(with AC power cable: AC100 to 120 V)

For stable measurement High precision type the FT-7200 Advanced Handheld Tachometer

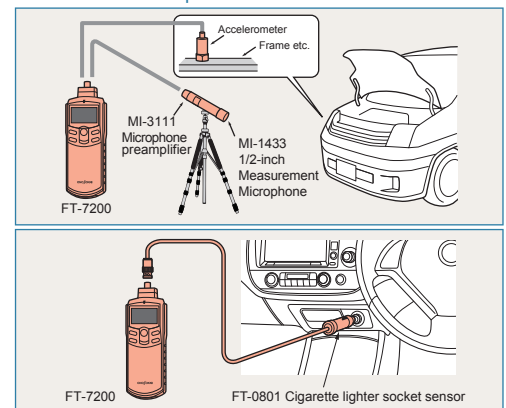


FT-7200

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 examples



Cigarette lighter socket sensor
FT-0801

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