

# ET-100 ENGINE TACHOMETER



**Functions convenient for engine revolution measuring**

**Compatible with various sensors**

**Easy signal input changeover**

**Measurement of cyclic and discontinuous pulses**

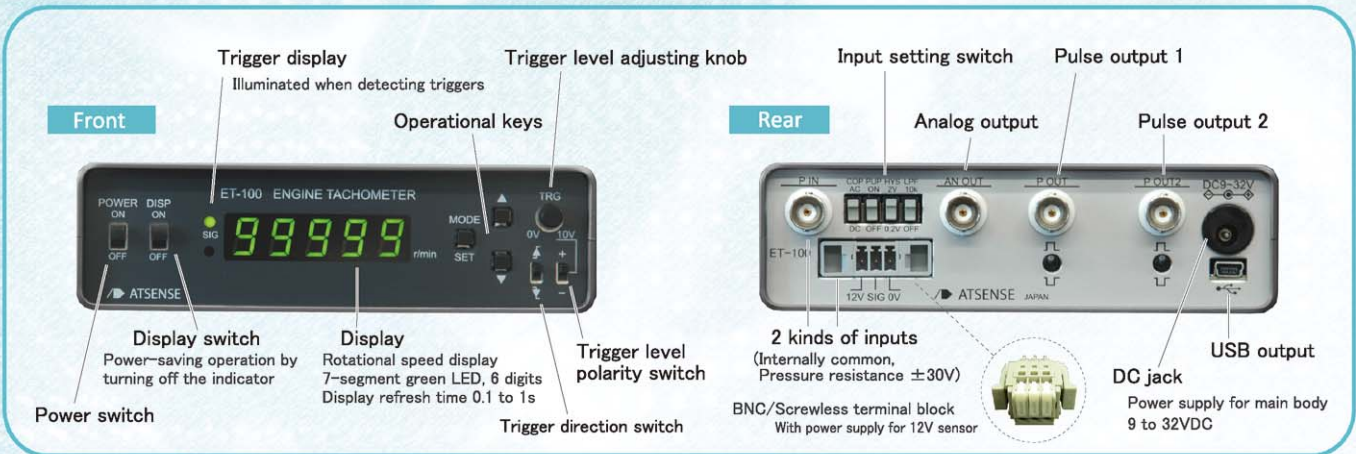
High speed F/V output, 2 pulse outputs, USB data output, DC/AC power source

ET-100

# ENGINE TACHOMETER



Possible to make a variety of signal measuring  
 Strong support for engine revolution measuring



## Corresponding to various sensors Various input setting

### Input

- ±10V nonstep trigger level adjustment
- Rising/Falling slope changeover
- AC/DC coupling changeover
- Corresponding to Voltage/Open collector
- 0.2V/2V hysteresis changeover
- 10kHz low pass filter ON/OFF

### Output

- Pulse output 1**  
 Wave shaping of sensor signal to logic signal  
 Possible to set pulse width from 0.1 to 9.9ms  
 Pulse output 0 - 5V
- Pulse output 2**  
 Divide-by-2 frequency output/revolution and 1 pulse output of Pulse Output 1  
 Pulse output 0 - 5V
- Analog output**  
 Proportionate output of rotating speed 0 to 10V  
 The fastest response of 80 μs  
 Capability of setting a range at the full scale(10V) of 1,000 to 99,000r/min
- USB output**  
 Output of rotating speed to PC with USB  
 (Please consult for PC software)

Engine Tachometer will satisfy all these needs.

## Engine measuring

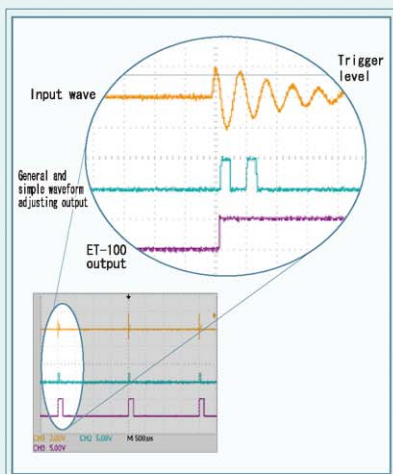
### Ignition pulse detection

When you want to measure the rotating speed of an engine with ignition pulse detector.

(In case of oscillatory waveform such as ignition pulse.)



Possible to measure with one time ignition of waveform wave shaping function without making plural triggers.



Unstable status at engine firing up affects the result.

Pulse response delay function can eliminate unstable and unnecessary signals at engine firing up.

## Revolution measuring

### Gear revolution measuring

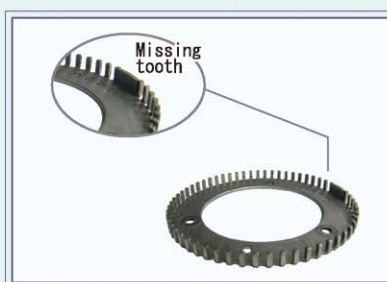
When you want to detect the rotating speed from a gear.



Possible to measure the revolution of each gear by inputting the signals from gear sensors.

Possible to set 1 pulse per revolution.

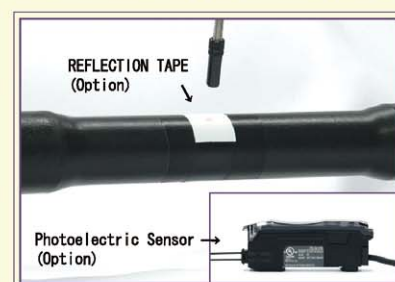
When there is any missing tooth, it looks as if the speed decelerates at the missing tooth.



It is possible to make it unaffected or alleviate by moving average setting function. It is effective when it is used for the signal plate of crankshaft or the signals from a cum position sensor.

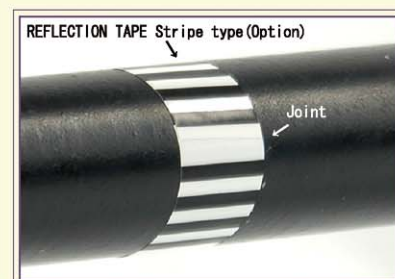
### Shaft revolution measuring

When you want to detect the rotation speed of the shaft.



Possible to measure the revolution speed by using a photoelectric sensor after attaching Reflection Tape to a shaft.

Though wanting to detect the revolution speed of a shaft, the pitch becomes unequally spaced at the joints of striped reflective tapes.



It is possible to make it unaffected or alleviate by moving average setting function.

※ REFLECTION TAPE Stripe type, Reflective Tape for detecting 1 rotation per pulse and photoelectric sensor are available as options.

## ■ Specification

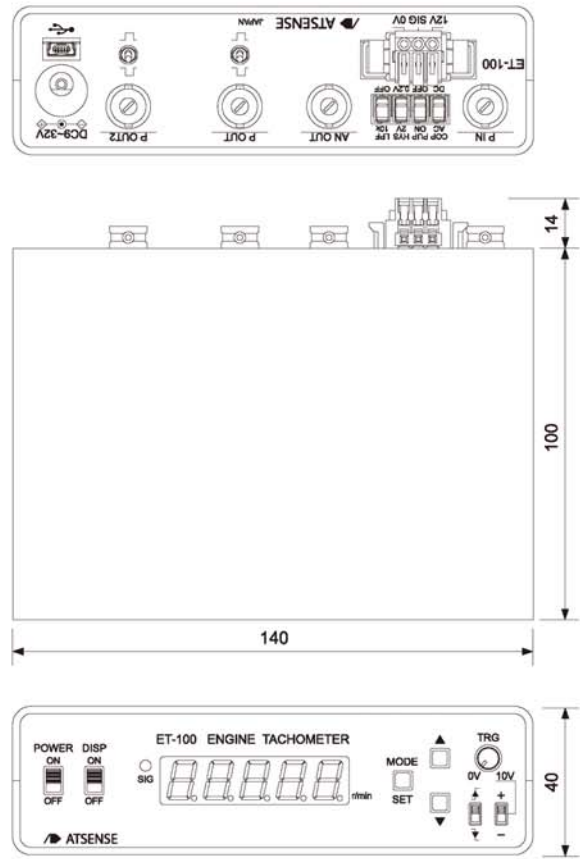
<b>Display</b>	
Display method	7-segment green LED(6 digits) 10mm high character length, zero suppression
Display item	Rotational speed(r/min)
Displayable range	0 to 99999r/min, OVER indication at 100,000r/min or over
Display refresh time	0.1 to 1.0s
Zero indication method	Zero suppression
Accuracy	±100ppm ± 1digit
Trigger Indicator	Sig green LED blinking, Continuous illumination at high speed pulse input.
<b>Pulse Input</b>	
Number of inputs	1 input(BNC connector and 3-core connector are internally connected)
Input method	Voltage pulse(Dielectric strength ±30V)
Coupling	DC or AC
Trigger Level	±0.2V to ±10.0V
Hysteresis	0.2V or 2V
Pull-up	OFF or 12V(10kΩ)
Trigger slope	Rising or Falling
Frequency range	0.1Hz to 9.8kHz(dependent on wave shaping pulse width)
Power supply for sensor	12V(100mAmax)
Input resistance	Approx. 100kΩ
Number of pulses per revolution	0.5 to 360.0P/R
<b>Pulse output</b>	
Number of outputs	2 outputs(BNC connector)
Output items	P OUT:Wave shaping output P OUT2:Half-frequency output/ 1-pulse output per revolution
Signal level	0-5V logic signal, 10mA max.
Output logic	Normal or Reverse
<b>Analog output</b>	
Number of outputs	1 output(BNC connector)
Output item	Rotational speed(r/min)
Output voltage range	0 to +10V
Accuracy	±0.1%F.S.
Refresh time	Refresh every 1ms or every pulse signal input
Permissible load impedance	10kΩ
<b>Data output</b>	
Output connector	USB Mini-B
Refresh time	Synchronized with set refresh time indication
Output items	Indication of rotating speed *Consult us regarding the software of PC side.
<b>General specification</b>	
Isolation	Power input / Signal input / Analogue&Pulse output, USB output
Power supply	9 to 32VDC, 5W(max.)
Power supply connector	DC jack 2.1mm ID, 5.5mm OD, Center Positive
Protection circuits	Reverse power connection protection
Power switch	Slide switch on front panel
Case material	Aluminium case
External dimensions	140mm(W)x40mm(H)x100mm(D) excluding external accessories.
Weight	Approx. 400g
Ambient operating temperature	0 to 40°C
Ambient operating humidity	0 to 85%(with no condensation)
Accessories	Rubber feet(4) AC adapter(1), DC plug cable(1)

## ■【Option】 AT-071-2 Specification

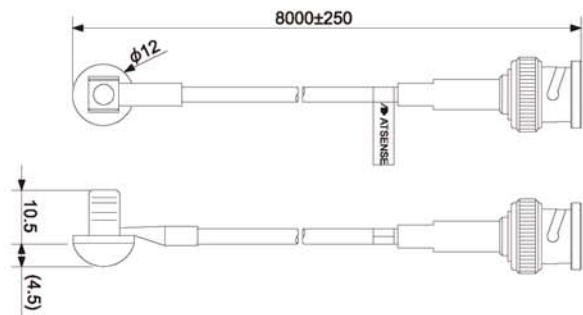
Length	8000 ± 250mm
Detection part	Support cable: Outline φ6.4mm
Cable	Coaxial cable: 1.5D-2V, PVC Jacket
Connector	BNC plug

## ■ Physical Dimensions

ET-100  
ENGINE TACHOMETER



【Option】 AT-071-2  
CLAMP ON SECONDARY IGNITION COIL PULSE DETECTOR



The specifications and appearances specified in the catalog are subject to changes due to product improvements without notice.

ATSENSE April 22, 2011

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