

Diesel Engine Tachometers

GE-1400

For diesel engine measurement applications

HT-6100

External sensor input type

For diesel engine and general rotating objects



GE-1400



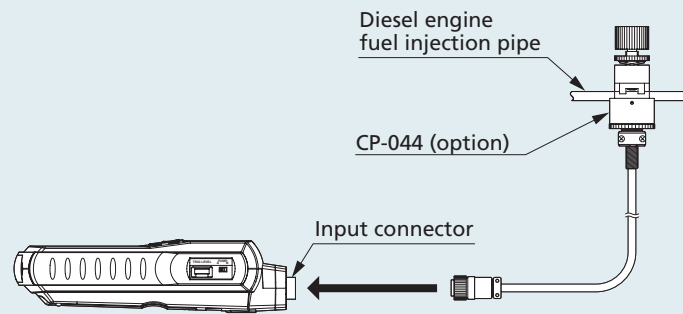
HT-6100

ONO SOKKI

- 1 Built-in memory function**
20 data (MAX) can be saved to memory.
- 2 Three outputs—analogue, monitor and pulse—provided as standard**
Use the analogue output function to record the number of rotations, the monitor output function to check the sensor's detection waveform, and the pulse output function to output rotation synchronization signals.
- 3 Large LCD with backlight**
(Character height: 10.2 mm)
- 4 Trigger adjustment function provided**
- 5 Can be mounted on a tripod**
The tachometer can be fixed to a tripod for continuous measurement.



Measurement method



Specifications			
Applicable engines		Four-cycle diesel engines	
Detection method		Detection of the pulsation generated by the injection pipe at the time of fuel injection	
Compatible detector		CP-044 (option)	
Calculation method		Cycle calculation method	
Measurement time		Within 1 s + the time required for one cycle	
Display		5-digit LCD, with backlight (character height: 10.2 mm)	
Display update time		1 ±0.2 s	
Measurement units		r/min, r/s	
Measurement range		400 to 8000 r/min (r/s is the range when the r/min measurement value is divided by 60)	
Measurement accuracy		Displayed value* x (±0.02%) ±1 count * The displayed value is the count value excluding figures after the decimal point.	
Measurement functions	Memory function	20 data (MAX)	
	Over-range function	The over-range alarm (ERROR mark) is displayed when the measured value exceeds the display range.	
	Rotation upper limit alarm function	The upper limit alarm (↑ mark) is displayed when the number of rotations exceeds the preset upper limit value.	
	Trigger level adjustment function	A rotary dial at the right-hand side of the device is used to adjust the trigger level.	
Output section	Analog output	Description of output function	Output with respect to the displayed rotation values
		Output voltage	0 to 1 V/0 to FS (FS is freely selectable)
		Conversion method	10-bit D/A conversion
		Linearity	±1%/FS
		Output update time	Within 50 ms + the time required for 1 cycle
		Temperature stability	±0.05%/FS/°C (span & zero)
		Setting error	±0.5%/FS
		Load resistance	At least 100 kΩ
	Monitor output	Description of output function	Analog output for monitoring purposes after waveform reshaping of the sensor signal
		Load resistance	At least 100 kΩ

Output section	Pulse output	Output voltage	Hi level: At least +4.5 V Lo level: Up to +0.5 V
		Output logic	Positive logic
General specifications	Power source	Load resistance	At least 100 kΩ
		Battery life	Four AAA alkaline batteries or exclusive AC adapter (PB-7080, Option) At least 16 hours (when the backlight is OFF) At least 8 hours (when the backlight is ON)
	Low battery alarm indicator	Operating temperature range	A low battery alarm (LOW mark) is displayed when the battery voltage falls below 4.4 V. 0 to 40°C
		Storage temperature range	-10 to 50°C
	Outer dimensions	Outer dimensions	186.5 (W) x 47.5 (H) x 66 (D) mm
		Weight (including batteries)	Approx. 280 g
	Accessories	Signal cable (AX-501)	1
		AAA alkaline batteries	4
		Carrying case	1

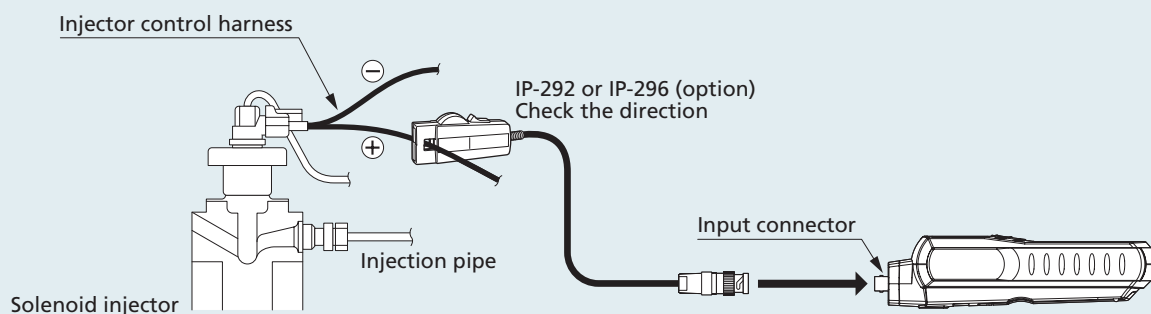
Note: Please refer to the User's Manual for the operating procedures.

CP-044 Specifications		*Option (sold separately)
Applicable engines	Diesel engines	
Detection method	A piezoelectric element is used to detect pulsation at the time of fuel injection	
Applicable pipe diameter	ø4 to 8 mm	
Piezoelectric element withstand compressive pressure	1,960 bar	
Measurement range	400 to 6000 r/min	
Operating temperature range	0 to +80°C	
Weight	Approx. 120 g	
Output cable length	Approx. 4.9 m	

- 1 Can be used with various sensors**
The HT-6100 can be used with the optional IP-292, IP-296, IP-3000 detectors, as well as with TTL signal output detectors.
- 2 Three outputs—analogue, monitor and pulse—provided as standard**
Use the analogue output function to record the number of rotations, the monitor output function to check the sensor's detection waveform, and the pulse output function to output rotation synchronization signals.
- 3 Built-in peak hold function**
The maximum and minimum values can be displayed during measurement.
- 4 Large LCD with backlight**
(Character height: 10.2 mm)
- 5 Built-in memory function**
20 data (MAX) can be saved to memory.
- 6 Can be mounted on a tripod**
The tachometer can be fixed to a tripod for continuous measurement.



Measurement method











Specifications

Applicable engines		Diesel engine, general rotating objects	
Compatible detectors		IP-292, IP-296, IP-3000, TTL signal output detectors	
Object of measurement		Ignition coil, primary/secondary ignition cables, ECU rotation pulses (5-V)	
Calculation method		Cycle calculation method	
Measurement time		Within 1 s + the time required for one cycle	
Display		5-digit LCD, with backlight (character height: 10.2 mm)	
Display update time		1 ±0.2 s	
Measurement units		r/min (when the IP-292, IP-296 or IP-3000 detector has been selected) r/min, r/s, m/min, ms, COUNT (when a TTL signal output detector has been selected)	
Measurement ranges		IP-292, IP-296, IP-3000	TTL signal output detector
	r/min	120 to 20000	100 to 99999
	r/s	—	1.66 to 999.99
	m/min	—	0.3 to 9999.9
	COUNT	—	0 to 99999
	ms	—	0.6 to 300.0
*The number of pulses per rotation (0.5 to 200.0 P/R) is freely selectable.			
Measurement accuracy			
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 rotational (r/min) accuracy.			
Measurement functions	Peak hold function	Maximum value (MAX), minimum value (MIN)	
	Memory function	20 data (MAX)	
	Over-range function	The over-range alarm (ERROR mark) is displayed when the measured value exceeds the display range.	
	Rotation upper limit alarm function	The upper limit alarm (↑ mark) is displayed when the number of rotations exceeds the preset upper limit value.	
	Line speed calculation function	Calculates the line speed from the preset diameter value (mm) and the measured number of rotations	
	Accumulating function	Provides a cumulative count of the input signal pulses	
	Cycle measurement function	Measures the input pulse cycle (however, when the cycle is less than 1 s, measures the mean value of the input pulses)	
	Trigger level adjustment function	A rotary dial at the right-hand side of the device is used to adjust the trigger level.	

Output section	Analog output	Description of output function	Output with respect to the displayed rotation values
		Output voltage	0 to 1 V/0 to FS (FS is freely selectable)
		Conversion method	10-bit D/A conversion
		Linearity	±1%/FS
		Output update time	Within 50 ms + the time required for 1 cycle
		Temperature stability	±0.05%/FS/°C (span & zero)
		Setting error	±0.5%/FS
		Load resistance	At least 100 kΩ
	Monitor output	Description of output function	Analog output for monitoring purposes after waveform reshaping of the sensor signal
		Load resistance	At least 100 kΩ
Pulse output	Output voltage	Hi level: At least +4.5 V Lo level: Up to +0.5 V	
	Output logic	Positive logic	
	Load resistance	At least 100 kΩ	
General specifications	Power source	Four AAA alkaline batteries or exclusive AC adapter (PB-7080, Option)	
	Battery life	At least 16 hours (when the backlight is OFF) At least 8 hours (when the backlight is ON)	
	Low battery alarm indicator	A low battery alarm (LOW mark) is displayed when the battery voltage falls below 4.4 V.	
	Operating temperature range	0 to 40°C	
	Storage temperature range	-10 to 50°C	
	Outer dimensions	189.5 (W) x 47.5 (H) x 66 (D) mm	
	Weight (including batteries)	Approx. 280 g	
	Accessories	AAA alkaline batteries 4 Carrying case 1	

Options (sold separately)

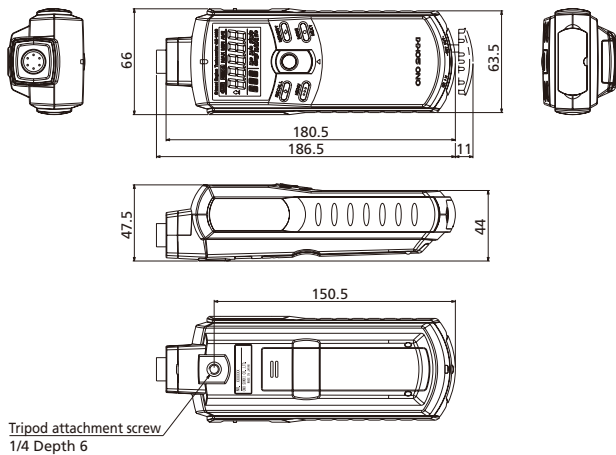
For the GE-1400	Diesel engine rotation detector CP-044		For the SE-2500 and HT-6100	AC adapter PB-7080	Signal cable (For both analog and pulse output signals) AX-501
					
For the HT-6100	Ignition detector IP-292	Ignition detector IP-296		Magnetic stand/Stand jig HT-0522/0521A	Tripod LA-0203A
				 (shown with tachometer mounted)	
	Ignition detector IP-3000				
					

*Separate detectors are required for the GE-1400 and HT-6100.

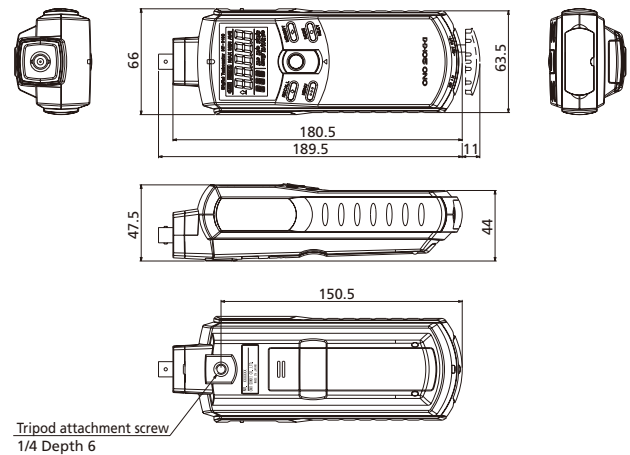
External diagrams

(Unit: mm)

▼ GE-1400



▼ HT-6100



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