

Digital Engine Tachometer

CT-6700

Compact and portable design



ONOSOKKI

Compact Tachometer for various engine measurement

The CT-6700 is a digital engine tachometer to measure rotation speed of gasoline/diesel engines, motors equipped on electric vehicles/hybrid electric vehicles, and general rotating bodies. Compact, space-saving design provides good operability and portability not only measurement on an engine test bench but also an actual vehicle.



1 High response measurement

CT-6700 captures transitional phenomenon of engine rotation speed with high response. The analog output follows the acceleration/deceleration behavior within the conversion time of 1 cycle+8 μs of input signal. The signal is output as a wave-shaped pulse, which enables the engine rotation speed to be sent without delay. High speed digital output is also possible with CAN output function.

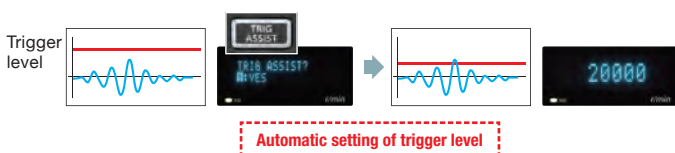


2 Wide variety of detectors can be used

By using the ECU crank pulse signal output, it is possible to measure various engine rotations that could not be measured before, in addition to ten types of detector such as an ignition pulse detector, gasoline/diesel engine rotation detector, and magnetic rotation sensor.

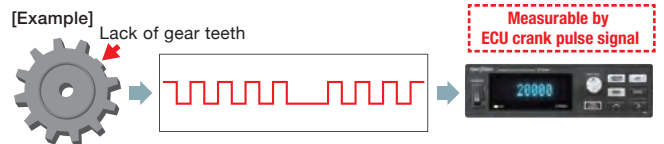
3 Automatic setting of trigger level with the Trigger Assist Function

Engine and motor rotations are measured after adjusting the trigger level. Ignition signals may contain various noises and it takes time for adjustment. This trigger assist function speeds up adjustment of the trigger level.



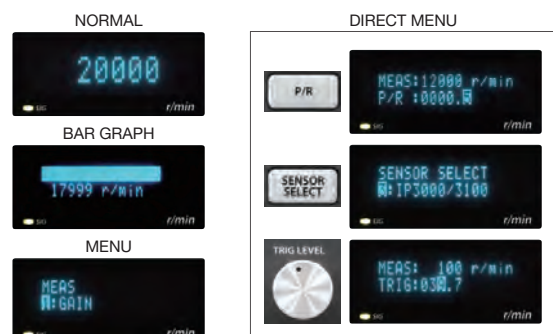
4 Measurement by ECU crank pulse signal of unequal interval pulses (option: CT-0672)

The CT-6700 uses the ECU crank pulse signal to measure engine rotation. The signal captured by the ECU has unequal intervals because gear teeth are arranged at unequal intervals to detect the top dead center. At a particular point, a lack or excess of gear teeth may be detected, making it impossible to measure engine rotation speed with a pulse signal that is output irregularly. The CT-6700 ensures reliable measurement through learning pulse patterns of irregular output.



5 Compact and easy to use

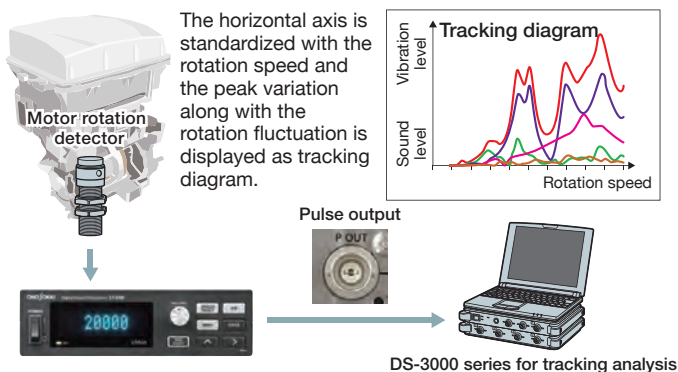
Compact, potable, and flexible design (170:W x 49:H x 120:D). Excellent readability makes it easy to set functions by selecting menu options. Also, you can easily select frequently-altered items, such as sensor type, pulse count and trigger level, with the relevant direct keys.



Various functions to help measurement

Pulse output function for tracking analysis

Tracking analysis can be performed by reading DIRECT pulse output of CT-6700 (signal for rotation synchronization) with DS series of Ono Sokki.



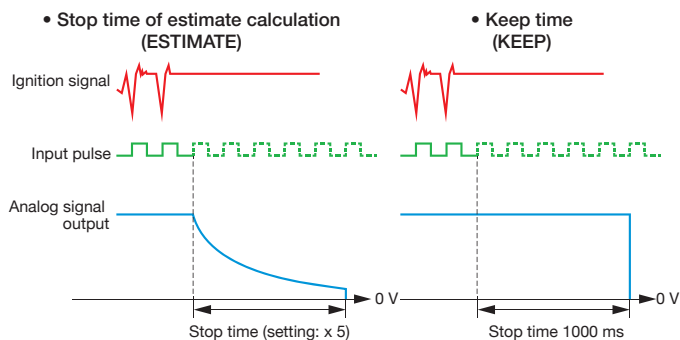
High speed digital data CAN output function (option : CT-0671)

Outputs rotation speed data in CAN communication. The output update cycle is 1 kHz at maximum. Any CAN-communicated devices, such as a CAN logger, can be used to record rotation speed data.

CAN	Baud rate (kbps)	125, 250, 500, 1000
	Update frequency (Hz)	OFF, 1, 2, 5, 10, 20, 100, 1000

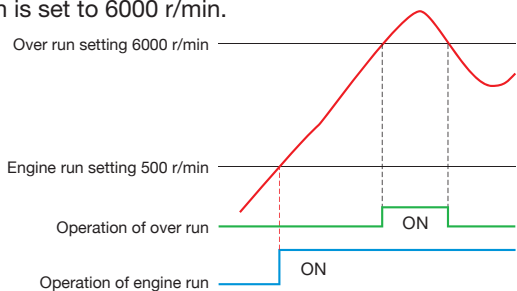
Deceleration calculation function supports the measurement in engine stop

When an engine stops suddenly, no pulse signal is generated, making it difficult to determine whether the engine tachometer stopped or not. This issue is solved by performing precalculation. The rotation signal of 0 r/min is output after the stop time that was expected from the last detected signal interval or after the set time has elapsed.



Comparator function for monitoring engine measurement status

The CT-6700 recognizes that the engine started when the engine run set value is exceeded. When the over run set value is exceeded, it is regarded as an engine failure and the contact point is output. The following graph shows an example when the engine run is set to 500 r/min and the over run is set to 6000 r/min.



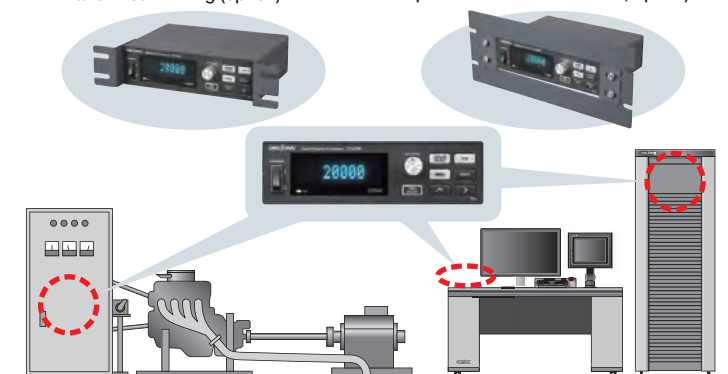
Application 1

Measurement on an Engine Bench

The CT-6700 does not need much place with its compact design even if it is set to an operation desk. Panel mount fitting or other assisting jig are also helpful for installation into a control panel.

Mounting example of CT-0673:
Panel mount fitting (option)

Mounting example of CT-0674:
Panel mounting jig (assisting jig for replacement from CT-6520B, option)



Application 2

Measurement on an Actual Vehicle

Compact design makes it useful for measurement on an actual vehicle.

Mounting example of CT-0676:
Light shielding hood (option)



■ Specification

Input Section	Applicable detectors	IP-292/296/3000A/3100, OM-1200/1500, VP-202/1220, LG-9200, MP-900/9000 series/981, EXT(PULSE), ECU crank pulse signal (option)	
	Measurement range	IP-292/296/3000A/3100 OM-1200/1500 VP-202/1220 CRANK PULSE	120 to 20000 r/min
		MP-900/9000 series	30 to 99999 r/min
		MP-981, LG-9200, TTL	0 to 99999 r/min
Display	Type (size)	Fluorescent display tube (52.5 x 11.5 mm)	
	Display range	0 to 99999 r/min*1	
	Accuracy	±0.01 %F.S (±1 count) or less	
Analog Output	Output range	0 to 10 V	
	Range setting	1 to 99999 r/min (set in steps of 1 r/min)	
	Load resistance	100 kΩ or higher	
	Response	Updates in less than 8 μs after cycle becomes stable	
Pulse Output	Output item (selectable)	DIRECT : Wave-shaped output 0.5 [P/R] : Output r/min value to obtain 0.5 P/R 1 [P/R] : Output r/min value to obtain 1 P/R 60 [P/R] : Output r/min value to obtain 60 P/R	
	Signal level	0 to 5 V logic signal (Lo: 0.4 V or lower, Hi: 4.5 V or higher)	
	Load resistance	100 kΩ or higher	
Contact Output	Item	Engine run, Over run	
	Setting range	1 to 99999 r/min	
	Contact capacity	30 VDC/0.1 A	
	Connector (cable side)	Phoenix Contact MVSTBR2, 5/4-ST-5, 08	
Digital Interface		RS-232C/CAN (option)	
Other Function	Moving average	2 to 720 times	
	Deceleration calculation	Selection of time or cycle Time : 1 to 1200 ms Cycle : x1.5 / x3 / x5 / x8 / x16	
	Trigger assist	Automatic setting of trigger level employed until pulse detection	
	Resume	Preserving condition values even while power is off	
	Condition memory	Maximum of five types of condition memory can be saved.	

General Specification	Power requirement	9 to 28 VDC, 12 VA or less AC adapter (100 to 240 VAC, 36 VA or less) Input cable with fuse clips on both ends (option)
	Outer dimensions (mass)	170 (W) x 49 (H) x 120 (D) mm (approx. 700 g)
	Operating temperature range	0 to +50 °C*2
	Operating humidity range	5 to 85 % (with no condensation)
	CE marking	Low Voltage Directive : 2014/35/EUEN61010-1 class 1 (When AC adapter is used.) EMC Directive : 2014/30/EUEN61326-1 class 1 Industrial Environment RoHS Directive : 2011/65/EUEN50581
	FCC	47 CFR Part 15 Subpart B Class A
	Accessory	Rubber foot x 4 AC adapter x 1 (100 to 240 VAC) Instruction Manual x 1

*1 Depending on the sensor and set value.

*2 AC adapter operating temperature range: 0 to +40 °C.

■ Product List

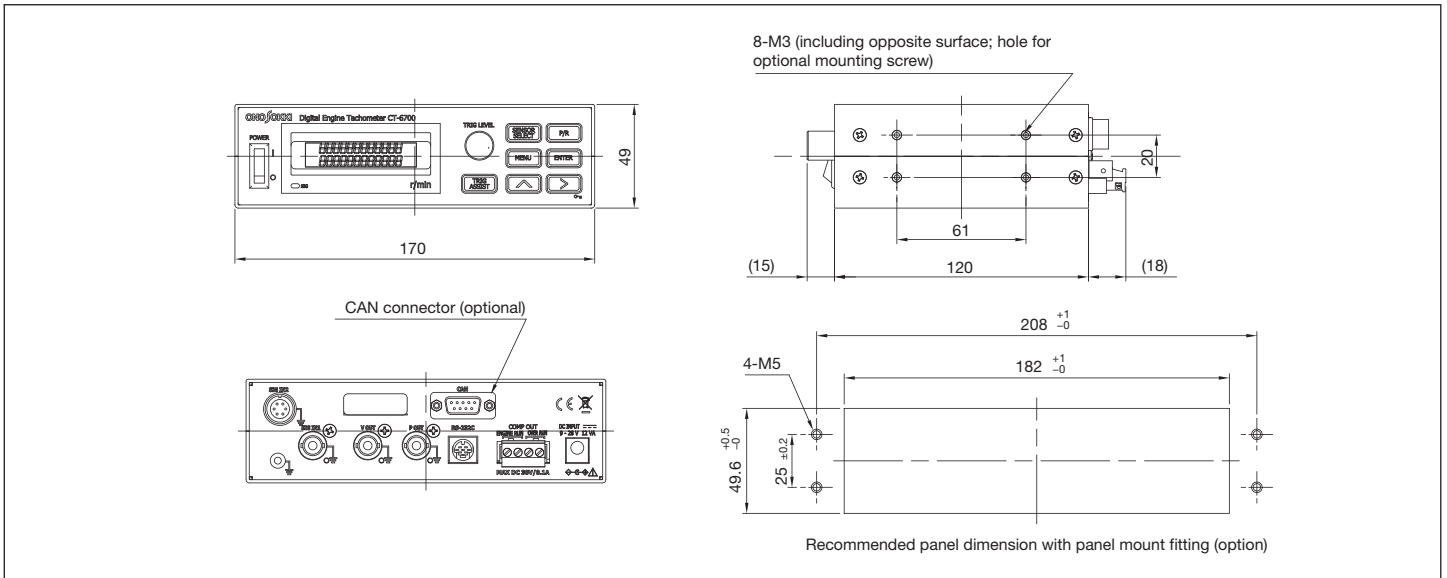
Model name	Product name
CT-6700	Digital Engine Tachometer (main unit)
CT-0671	CAN output function
CT-0672	ECU crank pulse signal input function*3
CT-0673	Panel mount fitting
CT-0674	Panel mounting jig (assisting jig for replacement from CT-6520B, option)*4
CT-0675	Protection handles
CT-0676	Light shielding hood

*3 Enables to measure the engine rotation speed from the ECU crank pulse signal.

*4 For using CT-0674, CT-0673 is necessary.

■ Outer Dimensions

(unit : mm)



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