

# TDP-3921-R

for chassis dynamometers, engine test systems, tire testing machines



The TDP-3921-R is a unique tachometer which has special functions and is popular in the Japanese car industry. The TDP-3921-R has high speed analog output, two channels of comparator outputs (photo MOS relays), and RS-232C interface. The measurement range is from 0.0006Hz to 100kHz, and the programmable display can be set to read out in any units, like rpm, rps, Hz, km/h, l/min, g/h, etc.

## ● High speed analog output

The measured value can be converted to -10 to 10 Volt analog signal ( 0 to 10Volt when single phase pulse is applied ) to other devices such as data logger or PLC. The polarity of analog output follows the direction of rotation. The analog signal can be scaled, e.g. 0 to 10V = 0 to 8000.0rpm. The updating time is 1ms.

## ● Wide input frequency range

Input frequency range is 0.0006Hz to 100kHz with no range change. The display accuracy is 20ppm ± 1digit.

## ● Employing PERIOMATIC™ technology

The TDP-3921R has the advanced forecast computation, PERIOMATIC™, which was invented by Cocoresearch. So the analog output can follow even so heavy fluctuation. The PERIOMATIC™ also includes stop (zero speed) forecasting, so the TDP-3921R can respond to sudden stop of the incoming pulses.

## ● Universal Input

The TDP-3921R can be directly connected to most popular sensors such as AC magnetic pickups, rotary encoders, proximity sensors, and pulse output devices. The TDP-3921 can detect the direction of rotation objects and indicate minus by LED display and analog output when 2 phase signals are applied.

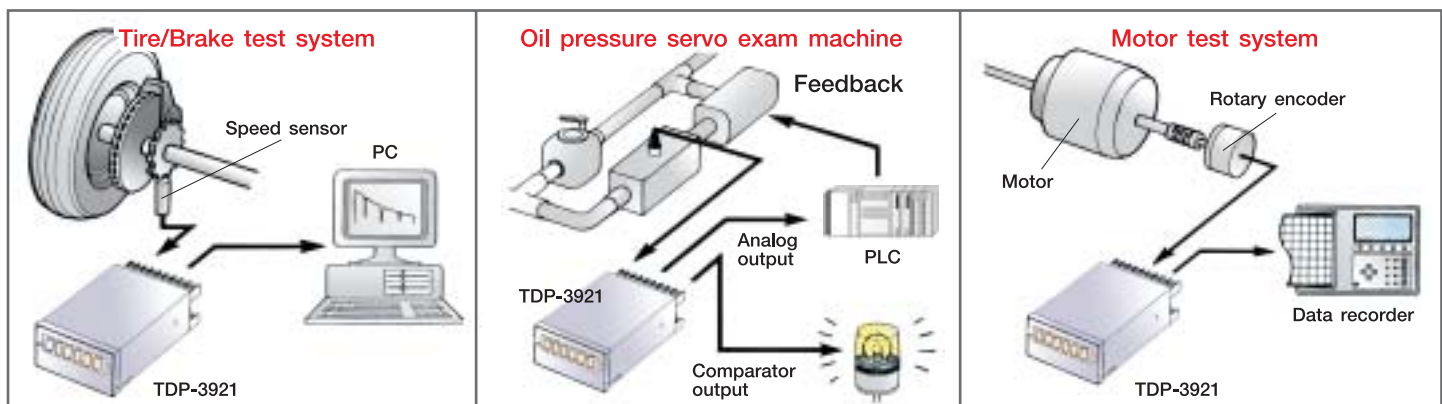
## ● Large 14.2mm bright LED display with fixed or floating decimal point.

## ● Three kind of averaging function, Time average, Moving average, and Pulse dividing, to filter fluctuated or irregular incoming pulses.

## ● Independent and programmable updating times of display and analog output.

## As a part of Testing equipments

TDP-3921-R is often used for car testing systems, like chassis dynamometer, engine test system, brake testing machine, tire testing machine, automatic transmission test system, etc. Besides measuring rotational speed, TDP-3921-R has flowmeter applications, too.



## SPECIFICATIONS

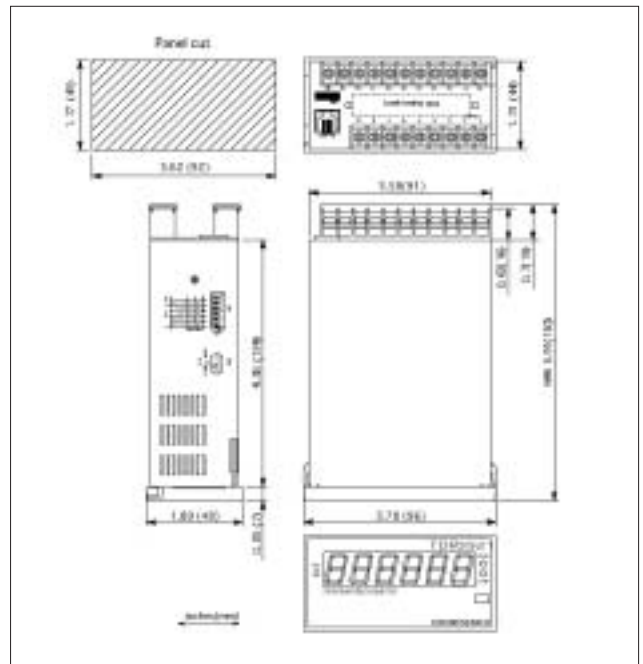
	Name Model Measurement	Periomatic tachometer TDP-3921-R PERIOMATIC™ processing
Input	Number of inputs Input frequency range Resolution Input method	1 0.0006Hz-100kHz 102ns (9.8MHz) 1) Single phase pulse 2) UP/DOWN signals of 2 inputs (separate pulse) 3) 2 phases A and B with 90° phase difference
	Input pulse width Input level	Min. 4 μs (both H level and L level) Logic : logic signals of more than 3.5V in H level and less than 1V in L level
	Withstand voltage Input connector Sensor power supply	Zerocross : alternative signal between ±100mV to ±30V ±30V Terminal block (7.62mm intervals, M3 terminal screw) +12V 50mA max
Processing	Measuring mode Operation rate	Frequency meter mode / Period meter mode Setting the displayed value against input frequency Input frequency rate : 0.00001-999999 (Hz) Display rate : 0.00001-999999
	Dividing rate (pulse average) Number of moving average Dynamic forecast™	1-999 (divided frequency by software) 1-8 8 steps (continuous estimate and, one cycle maintaining are included)
	Chatter suppressing function Dual range Memory of the set value	The chattering is removed Setting two kinds of operation rate Nonvolatile memory (EEPROM)
Display	Displayed colors Display Display digits Range of display Display of polarity Over display Zero display Position of decimal point	Red LED 7 segments of LEDs, character height is 0.56" inches (14.2 mm) 6 digits —199999~999999 —means lighting, + means no lighting By the OL display Reading of zero suppression Automatic range and fixed range □□□□□□ □□□□□□ □□□□□□ □□□□□□ □□□□□□ □□□□□□ □□□□□□
	Display update time Display accuracy	0.1-99.9 s 20 ppm ± 1 digit @23°C
Analog Output	Output voltage range Resolution Output updating time Full scale setting range Load resistance Output accuracy Temperature fluctuation Linearity	±10 V About 10000 (-10V ~ +10V) 0.001-99.999 s Display value setting in full scale (0.00000-999999.) Min. 4.7kΩ Max. ±0.2 % of full scale @23°C Max. 200 ppm/°C Max. ±0.1 %
Comparator Output	Number of channels Output signal Rating  ON resistance Updating time  Response time Output connector	2 channels (HIGH and LOW) Isolated noncontact output (photo moss relay) DC 350 V maximum 80mA (resistance load) AC 240 V maximum 80mA (resistance load) Under 50Ω Synchronization is selected for display updating time and analog output updating time Max. 3ms Terminal block (7.62mm intervals, M3 terminal screw)
RS-232C	Communication method Communication level Communication parameter Communication connector Output timing	Asynchronous communication method Serial communications by RS-232C Fixed at baud rate of 2400 bps Hexpole plug-in phone jack Communication output of displayed data at every display updating

General	Power supply input (* factory delivery option)	TDP-3921-RA10 AC100V ±10% 50/60 Hz TDP-3921-RA11 AC115V ±10% 50/60 Hz TDP-3921-RA20 AC200V ±10% 50/60 Hz TDP-3921-RA23 AC230V ±10% 50/60 Hz TDP-3921-RDF DC9.6~30V
	Electric power consumption	Max. 8 VA
	Outside dimensions	96 (W) × 48 (H) × 150 (D) mm DIN standards
	Weight	Approximately 700g
	Operating temperature & humidity limits	0°C to +40°C / Under 85%RH (no dewing)
	Storage temperature	-20°C to +70°C

### Other Options

Green LED Display : TDP-3921-GR  
4-20mA analog output : TDP-3921-I

## DIMENSIONS



## TERMINAL

Upper step								
1 (-)	2 (+)	3 F.G.	4 GND	5 AN OUT	6 GND	7 B (DOWN)	8 A (UP)	9 +V
POWER IN			AN.OUTPUT		PULSE INPUT			
Power supply			Analog output		Sensor input			

Lower step										
10 COM	11 LOW	12 HIGH	13 GND	14 DUAL RANGE	15 COMP RESET	16 DATA HOLD	17	18 GND	19 DATA-	20 DATA+
COMPARATOR			INPUT					(COM2)	(COMP1)	(COMP2)
Comparator output			Control input							

■If there is a possibility of secondary damages that may result from operation or mal-function of this product, take appropriate preventive measures to ensure safety.(fail-safe structure)

■Specifications are subject to change without any obligation on the part of manufacturer.

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