J7-0828

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Specification
for
Engine Revolution Meter

(REV-510)

PANTOS Co.,Ltd

１．OVERVIEW

The REV-510 is an unit for measuring the engine revolutions of gasoline or diesel engine

Gasoline engine revolution is measured by detecting the igniting pulse current of igniter +B by the detector or by using signal of ECU revolution meter.

Also, an optical fiber reflecting mark sensor can be used to measure revolution of gasoline or diesel engine.

In both cases, the measured value is output as the analog voltage and digital data.

２．SPECIFICATIONS

Basic specifications

Model: REV-510-00

Name: Revolution meter

Function: Engine revolution measurement

Input: Igniting pulse current detection signal
ECU signal
Optical fiber reflecting mark sensor signal

Configuration

No.	Item	Quantity per unit
1	Engine revolution meter main body	1
2	Accessories	1set

General Specifications

(1) Operating temperature and humidity range
0 to 40 ºC, 30 to 80% RH (no dew condensation)

(2) Power supply 100 VAC

(3) Power consumption 50 VA

(4) External dimensions 250 (W) × 75(H) × 310(D) mm

(5) Finish Light gray

(6) Mass 5 kg

Input sensor

Detector

- Ignition pulse current detection method of igniter +B
  Ignition coil primary side current detection
  Clamp type detector
- ECU revolution meter signal
  Pulse signal for ECU revolution meter of test vehicle
  (Input signal TTL level)
  (Input resistance 1MΩ)
- Optical fiber reflecting mark sensor
  FD-42G (Fiber)
  FX-301-HS (Amplifier)

Sensor Rack (option)

This is a special rack for measurement of revolution. It is a magnetic type stand to be mounted for setting the optical fiber reflecting mark sensor to the location near the mark stuck to the crank shaft pulley. (This rack cannot be used to measure the ignition timing.)

- Mark sensor for mounting FD-42G fiber

- Setting range of sensor height 500 - 600 mm

Note: In some cases, error of revolution by engine vibration may be added at measurement of revolution using this sensor rack.
Secure the sensor to the engine when using it.

Measurement Specifications

(1) Measurement of engine revolution

Input pulse setting	Copes with 0.5P/R ～ 99.5P/R (The minimum setup is 0.5)	
	Engine	Set the pulse rate to 1P/R when measuring the engine revolution with optical reflecting mark sensor or ECU revolution pulse input.
Output	Digital output	Positive logic hexadecimal output
	Analog output	0 to 1 V = 0 to 10000 rpm 0 to 10 V = 0 to 10000 rpm 2 ranges
Measuring range	300 rpm to 10000 rpm	
Resolution	1 rpm	
Accuracy	Digital section	±1 rpm + 1 digit
	Analog section	±0.5%/F.S.
Response speed	One measurement in 2 revolutions	

(2) Setting of analog output
Analog full scale can be set to 10 V or 1 V with the switch on the rear panel.
Zero/full scale adjustment of output can be performed with control on the panel.

(3) Setting of data transfer average
Performs data moving average, Number of data: 10
(Both of digital and analog values of moving average are output.)

(4) Setting of engine ON status signal output
Judgment level of engine ON can be set with the digital switch on the front panel.
□□□ x 10 rpm at every 10 rpm
When the set value is 000, the engine is always ON.

(5) Setting of engine overspeed (emergency stop) status signal output
Decision level of engine overspeed can be set with the digital switch on the front panel.
□□□ x 100 rpm every 10 rpm
Hysteresis: 0.2%
When the set value is 000, nothing is judged.

(6) Engine ON relay output
Relay contact output connector for detecting engine ON status

Output terminal	No-voltage contact signal and A contact output	
Maximum load capacity	30 V DC	1A
	125 V AC	0.5A

Hysteresis: 0.2%

(7) Overspeed relay output
This is overspeed alarm output terminal for engine revolutions.

Output terminal	Non-voltage contact signal and A contact point output	
Maximum load current	30 V DC	1A
	125 V AC	0.5A

Hysteresis: 0.2%

(8) Measurement / Check switching function
When the measurement / check switch on the panel is set to "Check", pulse equal to the input is generated to allow internal operation check and calibration of the output signal.

Digital display	4000 rpm
Analog output	Analog voltage equivalent to 4000 rpm (Output voltage varies depending on full scale set value.)

(9) Sensitivity setter

By adjusting the sensitivity setter on the panel, sensitivity of the ignition pulse detecting signal can be adjusted.

Available sensor IP-292 (Primary side)
Igniter + B clamp type detector

(10) Measurement display

Engine revolutions 7-segment green LED
5 digits

List of I / O connectors

Connector name	Pin	Signal name
Optical sensor input	A	Collector of optical sensor
	B	Emitter of optical sensor (AG1)
	C	N.C
	D	N.C
	E	Power supply for sensor (+12V)
ECU pulse input	A	ECU pulse signal input signal "+"
	B	ECU pulse signal input signal "-"
	C	N.C
	D	N.C
	E	N.C
	F	N.C
	G	N.C
1G +B input	+	IG + B signal input "+"
	―	GND (AG1)
Digital output	1	Engine revolution pulse signal
	2	Engine ON status signal
	3	Engine overspeed (emergency stop) status signal
	4	Preliminary
	5	Preliminary
	6	GND (DG)
	7	GND (DG)
	8	GND (DG)
	9	GND (DG)
Revolution pulse output	+	1 revolution 1 pulse signal
	―	GND (DG)
Analog output	+	Engine revolution analog signal (0-1 or 0-10V)
	―	GND (AG_DAC)
Engine output	A	Engine ON relay output (A contact)
	B	Engine ON relay output COM. (DG)
	C	Overspeed relay output (A contact)
	D	Overspeed relay output COM. (DG)

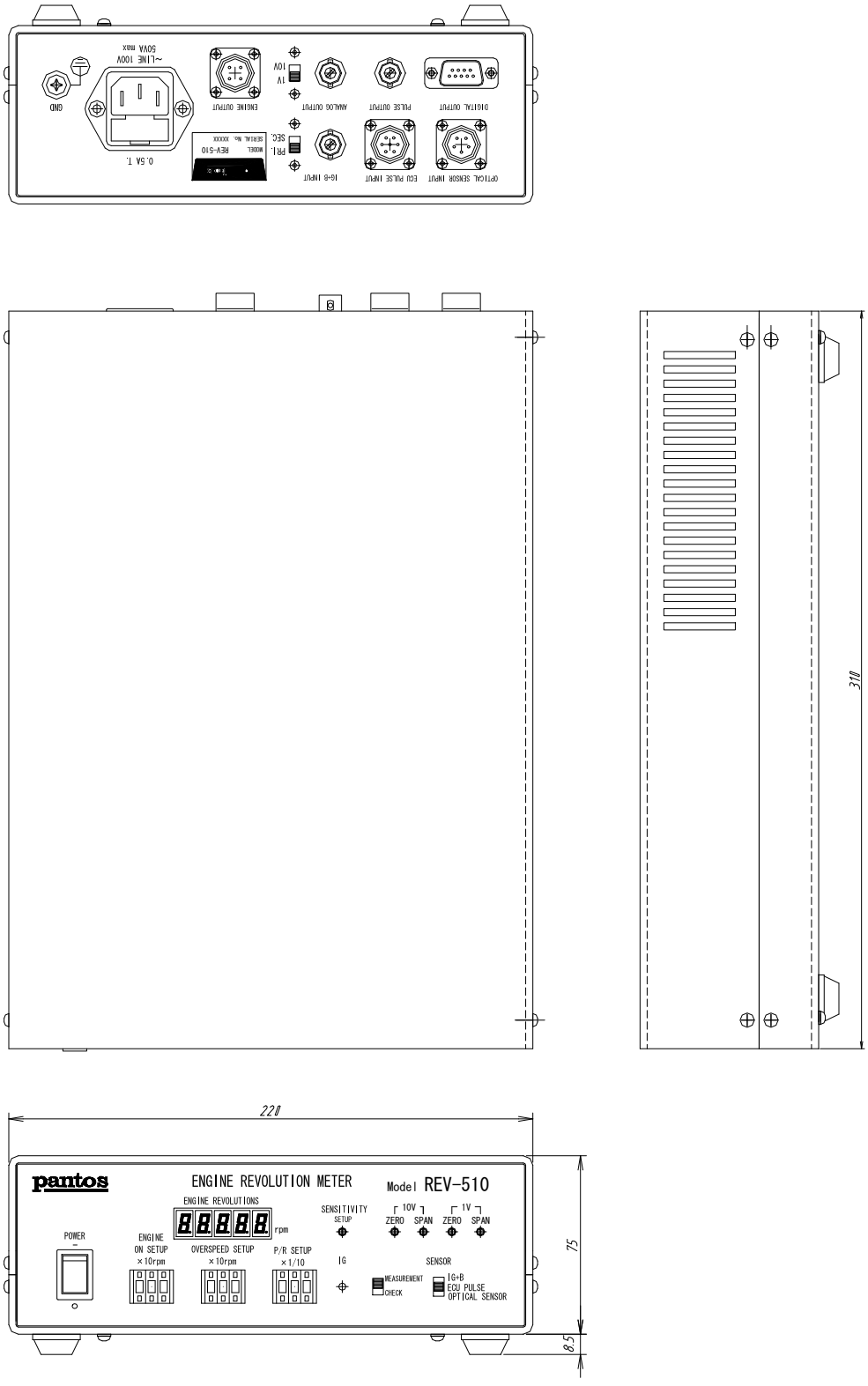
Note: (DG), (AG_DAC) and (AG1) are type of GND of substrate inside the main body. When common GND is used in the external device, malfunction may be caused. Be sure to use same type GND when connecting.

３．ACCESSORIES

No.	Name	Type	Quantity	Remarks
1	Engine revolution meter main body	REV-510-00	1	
2	Rotation input cable	1.5m	1	
3	Rotation input cable	1.5m	1	
4	Power supply cable　3P		1	
5	Fuse 0.5A		2	
6	ECU pulse input connector		1	
7	Digital output connector		1	
8	Engine output connector		1	
9	Instruction manual, test report 1 set		1	

4. EXTERNAL VIEW

External Drawing for Engine Revolution Meter REV-510



External Drawing for Sensor Rack