Rail track monitoring system

Description

The model **ACE-RTM Rail track monitoring system** can precisely measure any settlement or twist of rails on railroad tracks. It is also useful for measuring horizontal settlement of structures. The adjacent construction work has great influence on rail road bed when making tall buildings or subway tunnels under the bed. When this problem occurs or expected the magnitude and tendency of twist or rail settlement.

The sensor is embedded in a waterproof stainless steel tube that is connected to the joint and the protective tube via a one-line cable. Multi-point sensors are pre-assembled, making installation in the field very easy. Depending on the fixed installation location, there is a method of fixed installation on a rail or installation on a sleeper. Therefore, the mounting bracket must be selected and applied according to the purpose.

Install with mounting brackets parallel of the rail. If a displacement occurs in the railway, the displacement detection sensor and the twist detection sensor react and are sent to the data logger. Displacement value is converted into coordinate movement of current measured value and initial value then showed as graph or profile.

The measured data can be showed in 0.01mm unit in 2D graphic through the Web-based management program of **ACE-WMP**.

The ACE-RTM connects the sensors of all points by the sequential serial communication type of one-line cable. It can be remotely measured using our ADL-200A smart logger and wireless modem.

[Bundle of ACE-RTM]

Specification

Model	ACE-RTM-U (1 axis)	ACE-RTM-B (2 axis)
Range	$\pm 10°$	
Resolution	10 arc seconds	
Accuracy	$\pm 0.1\%$ FSR	
Nonlinearity	$\pm 0.5\%$ FSR	
Supply voltage	12V DC	
Output voltage	-5V~5V DC	
Insulation resistance	More than 100 MΩ / 500 V	
Operating temperature	-30~80℃	
Communication method	Serial communication	
Gage length	Selection of standard length 1, 2, 3m	
Waterproof	400m H$_2$O	
Built-in quantity	Depend on installation depth (max. 50 to min. 10 inclinometers)	
Materials	Stainless steel pipe, Hydraulic tube	
Weight	1m kit : 1.5kg, 2m kit : 2.2kg, 3m kit : 2.9kg	
Signal cable	$\varnothing 7$㎜, 0.24㎟ $\times$ 7C shielded PU sheath cable	
Accessores	① Mounting bracket (For rail or sleeper optional) ② Jumper cable	
Using logger	ADL-200A	
Analyzing program	Web management program of ACE-WMP	

System composition

● Settlement sensor
Measures deflection of Y-axis by putting mounting bracket and extension tube parallel with rails.

● Twist sensor
Measures twist of X-axis by putting with twist sensor at a right angle against the settlement sensor.

● Mounting bracket, extension tube
Connection the settlement sensor and twist sensor with rails.

● Rail horizontal sensor (Optional)
Horizontal sensor on both sides of the rail are fixed and installed to measure the horizontal tilt between rails.

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• Tel : 82-31-459-8753/7   • Fax : 82-31-459-8758
• Website : www.aceinstrument.com / www.aceco.kr   • E-mail : acens@naver.com

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The readout

Serial communication type rail track monitoring system can connect to our model ADL-200A Smart logger and can be remotely controlled and measured by wireless modem.
It is also compatible with third-party devices such as the CR-1000.

Features

- High precision and reliability
- 2-dimensional graphics of measured data
- Minimized impact from construction work
- Easy to use and analyze measured data
- Possible to automatic measured

Ordering information

- Application field
- Quantity and length of gage
- Kind of railroad bed
- Fixed installation method of rail or sleeper

Installation of quantity of sensor

Quantity of sensor	Length of signal cable
10	380m
13	340m
16	300m
19	260m
23	220m
27	190m
32	150m
37	110m
43	70m
50	40m

[Installation of ACE-RTM for rail]

[Installation of ACE-RTM for sleeper]
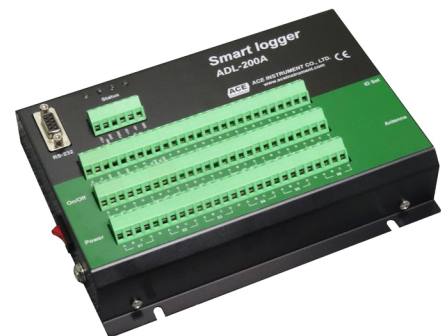
[ADL-200A Smart logger]

Web program

Web monitoring program as ACE-WMP is available graph frontier, report creation and modification, alarm, real-time measurement data retrieval. It is based on the data stored in the server computer throughout all kind of static sensors.

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