PORTABLE ELECTRONIC STRAIGHTNESS MEASURER

MODEL RECTIRAIL

The Portable Electronic Straightness Measurer model RectiRail is a user-friendly and simple to use instrument designed to measure without contact the rail geometry (running surface, sides and corners at 45°, ie all the rail head profile).

Particularly damp proof and hardened, its design directly comes from research which answer to really specific needs in rails straightness control and according to last technology evolutions. Moreover, it permits to check and identify corrugation, planarity, parallelism and perpendicularity of welds, to check rail butt-end sections. RectiRail also comes from acquired experience with the model RectiWay which is largely used and adopted by operators all over the world.

It is fitted with a system designed to ease the measuring process and guarantee the exactness of measures. This equipment presents all necessary qualities for a rapid and really accurate work in any conditions thanks to its LCD swiveling screen and its ergonomic joystick which can be used even with gloves.

1. DESCRIPTION AND OPERATION

Description

Portable and self-contained, the RectiRail can be used both on-site and in fixed plant environments using either internal batteries or a mains power supply. An array of non-contact measuring transducers ensures highly accurate and repeatable measurements every time. The measuring process is started at the touch of a button and within a few seconds the recording is displayed on an LCD screen.
1. DESCRIPTION AND OPERATION (Cont’d)

Once positioned on the conductive rail, the RectiRail is held in place by means of two magnetic stops. This ensures that the instrument is correctly placed and held stable during the measuring process. The equipment is particularly well protected from electromagnetic perturbations.

Depending on its orientation, straightedge measurements can be taken on:
- Railhead crown (vertical alignment)
- Railhead running gauge (horizontal alignment)
- Gauge corner

Operation

The measuring is carried out by capacitive sensors: each gives a response directly related to the distance to the rail, allowing to know the real rail state with precision. Results are displayed, in graphical form, shortly after the measuring process is complete and information relating to the shape and amplitude of the fault can easily be interpreted.

At any time, the operator can store a measure into the local memory. The traces are marked by an alphanumerical 20-digit keyboarded screen (pivoting for operator’s comfort) when saving as date and hour are also recorded.

Traces analysis

It is also possible to visualize traces which are archived in the local memory. The available traces list is given to the operator for this purpose.

Finally, the integrated USB/serial link allows to transfer to a mainstream PC data for a later process.
1. DESCRIPTION AND OPERATION (Cont'd)

On a practical point, the RectiRail is driven with a joystick and two knobs (“validation” and “escape”) which are placed near the handles. Its swiveling screen enable the operator to see traces in any orientation of the RectiRail and despite the sun bounces.

In order to increase usability further, much of the instruments configuration is user selectable, thus allowing the operator to set options such as language (English, French, German, Spanish), display options and power-off timer with ease.

The RectiRail is supplied with standard RECTIPC Windows based software to allow for detailed analysis of the measurements on a desktop PC. Measurements can be displayed and/or printed in a wide variety of formats or simply archived for future analysis.

For instances where straightedge references in excess of 1 meter are required, RECTIPC provides a method of overlapping multiple recordings. Automatic synchronization of the individual recordings is achieved by means of software correlation techniques (from 1 meter to 3 meter). Results can be printed.

In order to follow up the straightness evolution with time, two recordings of the same rail section done at different time can be superposed. The first recording is taken as it is, while the second one is appearing superimposed. Exposing the abscissa of one in relation to the other, the operator can search the maximum of coherent points between the two recordings.

Accessories supplied with RectRail

The RectiRail is supplied with:
- 1 RECTIPC Windows based PC data transfer/analysis software;
- 1 set of 6 lithium cells, voltage 1.5 V;
- 1 mains power supply;
- 1 USB/serial cable;
- 1 operating manual;
- 1 protective box (see picture on the right).

2. TECHNICAL DATA

- Measuring length: 1 000mm
- Number of transducers: 100 (with polycarbonate protection)
- Measuring range: 4 mm
- Resolution: 12,5 µm
- Accuracy: ± 50 µm
- Measured target area: 12 mm diameter
- Measuring time: ≈ 1 second
- LCD screen dimensions: 39 x 132 mm
- Graphical zoom settings: 1/5/10
2. TECHNICAL DATA (Cont’d)

- Memory capacity: 500 measurements
- Measuring points: running surface, sides 14 mm below running surface, and corners
- Rails which can be measured: UIC54, UIC 60... (grooved rail on request – drawing to be provided)
- Environmental (electronics, measure, screen): IP65
- Environmental (bearings stops): IP55
- Use temperature:
  - Ambiant air: from 0 to 35 °C
  - On rail: from 0 to 50 °C
- Power supply: 110-230 V – 50/60 Hz → 9 Vcc
- Instrument dimensions:
  - Length: ≈ 1160 mm
  - Width: ≈ 85 mm
  - Height: ≈ 200 mm
- Mass net (with cells in working order): ≈ 7.5 kg

3. ACCESSORIES AND OPTIONS (at extra price)

- Calibration set, comprising:
  - 1 calibration rail (accuracy 10μm) supplied with the manufacturer’s calibration certificate
  - 2 calibration wedges (2 mm) supplied with the manufacturer's calibration certificate

We reserve the right to modify any equipment specification of the present offer to take into account the latest technical improvements and working conditions at the date of manufacturing. Pictures and drawings may include some options and are not contractual.