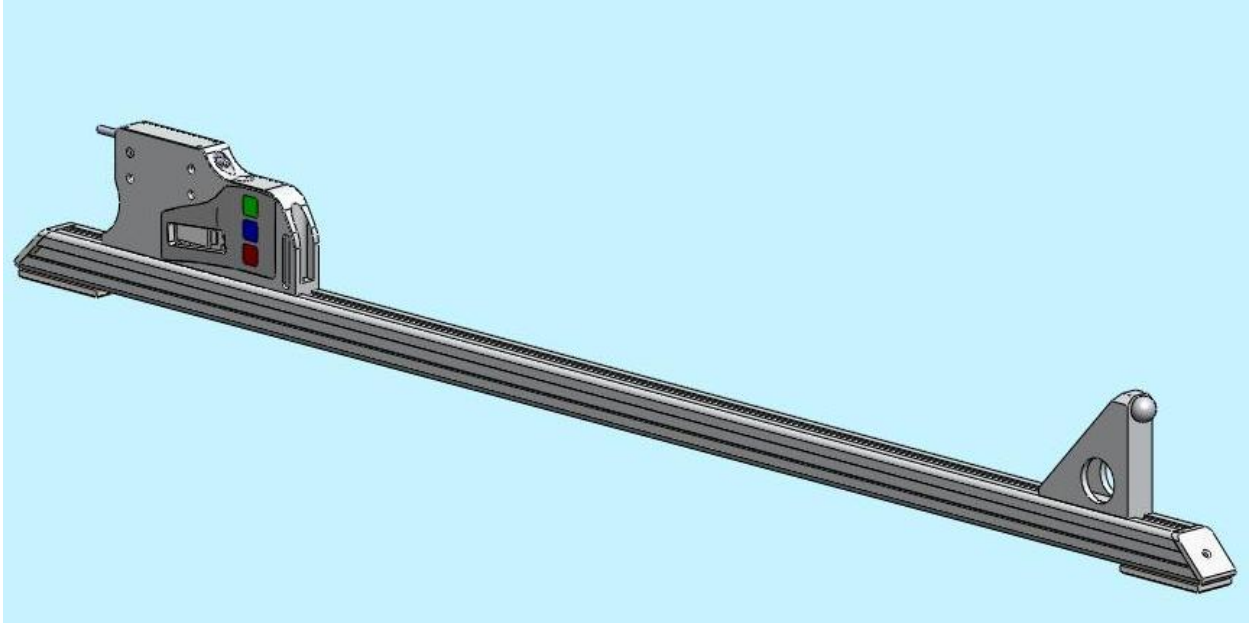


RIFTEK



Back-to-back distance Measuring Gauge IMR

User's manual.

RIFTEK

Logoisky tract 22

Minsk, Republic of Belarus,

Tel/fax: +375172813513

E-Mail: info@riftek.com

Internet: www.riftek.com

Certified according to ISO 9001:2008

Contents

1.	Safety precautions and measurement conditions	3
2.	Electromagnetic compatibility	3
3.	General information	3
4.	Basic data and performance characteristics	3
5.	Example of item designation when ordering	3
6.	Complete set to be supplied	4
7.	Design	4
8.	Operation principle	4
9.	Working with the gauge	4
9.1.	Gauge turn-on	4
9.2.	Single measurement	4
9.3.	Measurement with averaging	5
9.4.	Gauge turn-out	5
10.	Indication parameters setup	5
10.1.	Image brightness set-up	5
10.2.	Millimeters-Inches display set-up	6
11.	Service operation modes	6
11.1.	Calibration conditions	6
11.2.	Get into operational modes	6
11.3.	Calibration of the sensor zero	7
12.	Charging of built-in accumulator battery	7
13.	Warranty policy	7
14.	Distributors	8

1. Safety precautions and measurement conditions

- The metering accuracy depends greatly on the wheel surface quality. Therefore it is necessary to carry out the check and presorting of the wheel surface roughness and flaws before measuring the diameter.
- Prior to place the gauge is a need to clean the wheels and rails parts that contact with gauge ball bearings and measuring tip, of the mud.
- At arranging the gauge, do not allow hitting its supports on the wheel and rail and any measuring tip side hitting
- It is necessary to inspect the gauge supports periodically and to cleanse them
- To save the battery power the display extinguishes if there were no buttons pressings for 60 seconds, at that only blinking dot is shown. Pressing any button just turns on the display and does not act in any other way in this case.

2. Electromagnetic compatibility

The gauge has been developed for use in industry and meets the requirements of the following standards:

- EN 55022:2006 Information Technology Equipment. Radio disturbance characteristics. Limits and methods of measurement.
- EN 61000-6-2:2005 Electromagnetic compatibility (EMC). Generic standards. Immunity for industrial environments.
- EN 61326-1:2006 Electrical Equipment for Measurement, Control, and Laboratory Use. EMC Requirements. General requirements.

3. General information

Electronic gauge is designed for measuring back-to-back distance of railway, metro and tram wheels in the course of checkup, examination, repair and formation of wheel sets. Measurements are made directly on rolling stock without wheel set roll-out.

4. Basic data and performance characteristics

Name of parameter	Value
Measurement range, mm	990...1010 or on request
Measurement error, mm	±0.1
Indication discreteness	0.1mm, 0.01mm * or 0.01 inch **
Display	build-in, LED
Operating temperature, °C	-5...+40
Weigh, kg	1
Dimensions	figure 1
Power supply	rechargeable batteries 2xAAA, 1.2V

5. Example of item designation when ordering

IMR- MIN/MAX

Symbol	Description
MIN	Bottom of measuring range, mm
MAX	Up of measuring range, mm

Example: IMR-990/1010. Bottom of measuring range – 990 mm; up of measuring range – 1020 mm.

6. Complete set to be supplied

Name	Quantity	Weight, kg
The measuring gauge IMR series	1 piece	1
Charger	1 piece	0,2
Manual	1 piece	
Case	1 piece	
Calibration tools (option)	on request	

7. Designe.

Electronic gauge contains ball support to place the gauge onto the internal surface of the wheel, two side supports to base the gauge to the wheel edge or the rails and measurement tip.

There are a digital numeric display and control buttons on the front panel of the gauge. “Charge” connector for charging device connection is situated on the top panel of the gauge.

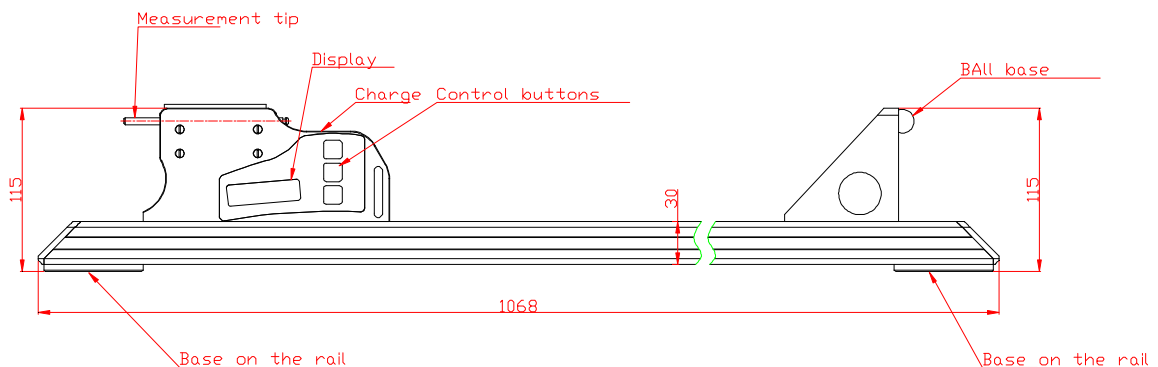


Figure 1

8. Operation principle

The method of measurement is based on direct measurement the distance by contact linear encoder.

9. Working with the gauge

9.1. Gauge turn-on.

Press **Red** button to turn on the power. The display shows “ErrP” message if the accumulator battery voltage became lower then the control level. In this case the short-term work is possible after pressing any key.

9.2. Single measurement.

To perform measurement, it is necessary to:

- turn the power on (press **Red** button). The display shows “- - - -”;
- place the gauge between the wheels;
- make sure that the ball support is tight against the surface of the wheel and side supports are adjacent to the edge of the wheel or the rails;

- press **Green** button.
- in a 1 second the display will show the value of the wheel diameter.

For viewing the result of measurement with indication discreteness of **0.01mm** (it is accessible only in a mode of direct indication) it is necessary to press **Blue** button, thus displayed result will be shifted to the left on one digit. Next pressing **Blue** button will lead to return of indication to a starting position:

9.3. Measurement with averaging

The program of the back-to-back distance calculation contains an averaging algorithm that allows eliminating the surface defects influence on the distance measuring result. All the results of metering, performed after the **Red** button pressing, are averaged. The measurement is meant to be **Green** button pressing.

To carry out measurements it is necessary to

- turn the power on (press **Red** button). The display shows “- - - -”;
 - place the gauge between the wheels
 - make sure the ball support is tight against the surface of the wheel and side supports are adjacent to the edge of the wheel or rails;
 - press **Green** button;
 - display shows the value of pressing counter “n x”, where **x** – quantity of averaged values;
 - in a 1 second display shows an average value over the set of metering (over the quantity of **Green** button pressings)
 - move the gauge to a new position and repeat the measuring.
- (The total quantity of measurements averaged in this way can run up to 9999.)
- Press **Red** button to reset averaging result at switching to another wheel.

For viewing the result of measurement with indication discreteness **0.01mm** (it is accessible only in a mode of direct indication) it is necessary to press **Blue** button, thus displayed result will be shifted to the left on one digit. Next pressing **Blue** button will lead to return of indication to a starting position.

9.4. Gauge turn-out

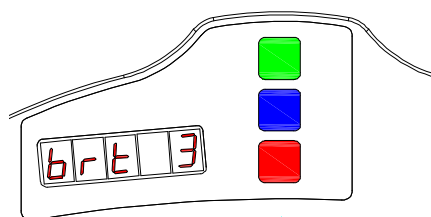
The gauge turn-out occurs automatically. The display extinguishes if there were no buttons pressings for 60 seconds, at that only blinking dot is shown. If there were no button pressings for 4 more minutes, the gauge is turned out completely. You can turn the gauge off by long pressing **Red** button (more then 3 sec.).

10. Indication parameters setup

10.1. Image brightness set-up.

To change the display brightness it is necessary to:

- turn the power on (press **Red** button).;
- press **Blue** button and keep it pressed for more than three seconds;
- display will show “brt X”;



- choose the necessary brightness value by **Green** button pressings;
- to save the changed parameters press **Red** button the display shows “SAUE” message, press the **Green** button to confirm saving and **Red** to cancel saving of the changed parameters;

At brightness choosing one should take into account that increased brightness enhances power consumption and decreases the period till battery recharge moment.

10.2. Millimeters-Inches display set-up

To change the mode it is necessary to:

- turn the power on (press **Red** button).;
- press **Blue** button and keep it pressed for more than three seconds;
- display will show “brt X”;
- press **Blue** button again until the either “SI” or “Inch” message appears on the display. “SI” – measuring results will be shown in mm, “Inch” – measuring results will be shown in inches;
- choose the necessary value by **Green** button pressings;
- to save the changed parameters press **Red** button the display shows “SAUE” message, press the **Green** button to confirm saving and **Red** to cancel saving of the changed parameters

11. Service operation modes

This section contains the description of the modes for the check of device efficiency and calibration. As erroneous actions in this mode can lead to invalid measurement results, only specially trained personnel should perform such operations.

11.1. Calibration conditions

Calibration of the device is not necessary in the current work. It is necessary only after producing, repairing and also after checking with negative result.

To perform calibration the following means are necessary:

- Calibration tool RF260.90.000 fig.2;

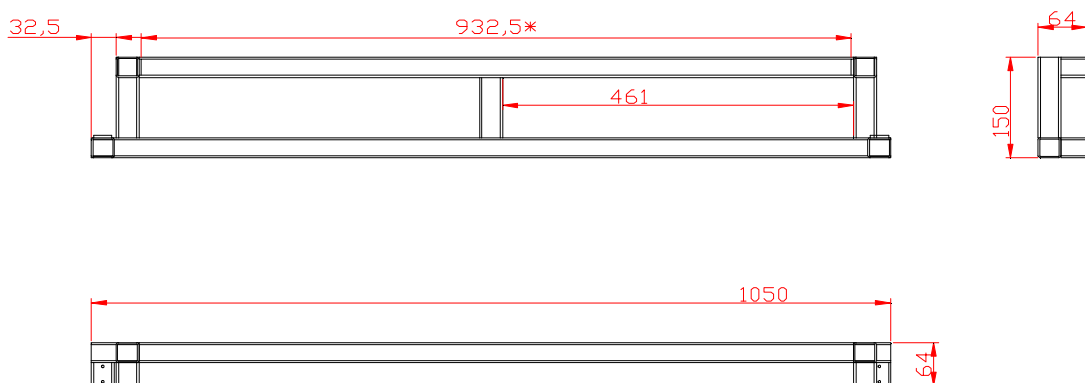


Figure 2

11.2. Get into operational modes

- To get into the operational modes it is necessary to turn-off the device (press **Red** button more then 3 seconds).

- Keeping **Green** button in pushed position turn-on the device (press **Red** button).
- Display shows “**CLbr.0**” message (the mode of calibration of the sensor's "0").
- To get into this mode it is necessary to press **Green** button (see. p. 11.2).
- For transition to next mode it is necessary to press **Blue** button.
- Display shows “**CLbr.b**” message (the mode of device base calibration).
- To get into this mode press **Green** button (see. p.11.3).
- To get out the mode of calibration press **Red** button.

11.3. Calibration of the sensor zero

- Zero calibration mode being enabled, the display shows the length of calibration tool.
- If editing of the length value is not required, go to the next step. To edit the length value, press the **Blue** button, and the digit to be edited starts blinking. Changing over between the digits is made by pressing the **Blue** button while changing of values is made by pressing the **Green** button. When editing is finished, press the **Red** button and confirm or cancel saving of the parameter by pressing the **Green** button or **Red** button, respectively.
- Press the **Green** button, and the length value starts blinking, which means that the device must be placed onto calibration tool. The measurement tip and support ball of the gauge must be tightly fitted to the flat plates of calibration tool (figure 3).
- Press the **Green** button, and the display shows current reading of the sensor in its own coordinate system. By moving the device, assure that repeatability of measurement results is obtained.

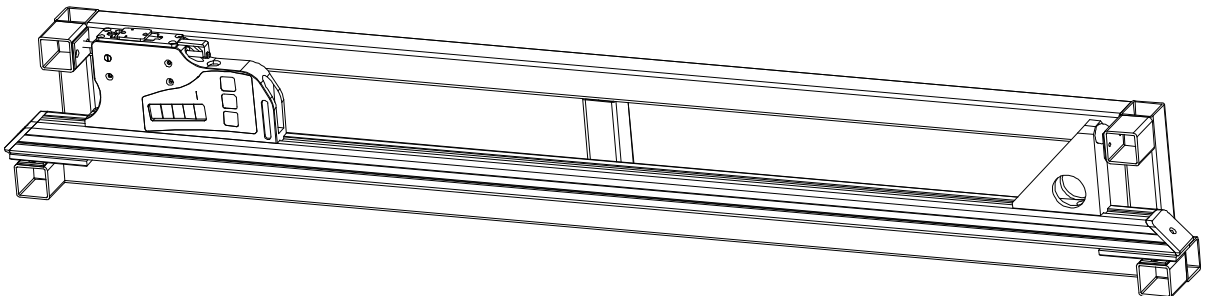


Figure 3

- If readings of the sensor are sufficiently stable, press the **Blue** button. Sensor zero position is calculated in the device coordinate system, and prompt appears to save calibration results. Press the **Green** or **Red** button to confirm or cancel saving of the results, respectively.

12. Charging of built-in accumulator battery

To charge accumulator battery it is necessary to connect charging device to the power grid 85-250V and to a battery compartment on the top panel of the gauge.

The period of charging is 15 hours.

13. Warranty policy

Warranty assurance for the Back-to-back measurement gauge - 24 months from the date of putting in operation; warranty shelf-life - 12 months.

14. Distributors

<p>BENELUX.</p> <p>Feteris Components B.V. Tel.: +31 (70) 3924421 Fax: +31 (70) 3644249 www.feteriscomponents.com sales@feteriscomponents.nl</p>	<p>CHINA.</p> <p>Zhenshangyou Technologies Co.,Ltd. Rm 2205-2210, Zhongyou Hotel 1110 Nanshan Road, Nanshan District 518054 Shenzhen, China Tel.: (86)755-26528100/8011/8012 Fax: (86)755-26528210/26435640 info@51sensors.com www.51sensors.com</p>	<p>GERMANY.</p> <p>BIP-Industrietechnik GmbH Am Elisabethhof 22, D-14772 Brandenburg D-41379 Brueggen, Germany Tel.: +49 (0) 33 81 - 75 90 -0 Fax: +49 (0) 33 81 - 75 90 -11 http://www.bip-industrietechnik.de info@bip-industrie.de</p>
<p>FINLAND.</p> <p>Saalasty Oy FIN -02920 ESPOO Tel.: +358 9 25115524 Fax: +358 9 25115510 www.saalasti.fi jussi.puolakka@saalasti.fi</p>	<p>INDONESIA.</p> <p>PT. Dhaya Baswara Saniyasa Sentra Niaga Puri Indah Blok T6. 41 Kembangan, Jakarta 11610 Tel: 021 5830 4517 Fax : 021 5830 4518 management@ptdbs.co.id</p>	<p>ITALY.</p> <p>FAE s.r.l. Via Tertulliano, 41 20137 Milano Tel.: +39-02-55187133 Fax: +39-02-55187399 fae@fae.it www.fae.it</p>
<p>LITHUANIA.</p> <p>JSC "Comexim" Serbentu. 222, LT -5419 Siauliai Tel./Fax:+370 41553487 http://www.komeksimas.lt comexim@siauliai.aiva.lt</p>	<p>MALAYSIA.</p> <p>OptoCom Equiptech (M) Sdn H-49-2, Jalan 5, Cosmoplex Industrial Park. Bandar Baru Salak Tinggi, Sepang Tel: 603-8706 6806 Fax: 6038706 6809 optocom@tm.net.my www.optocom.com.my</p>	<p>PORTUGAL.</p> <p>UltraSens. Tel.: (0351) 239700373 Fax: (0351) 239700301 http://www.ultrasens.com geral@ultrasens.com</p>
<p>RUSSIA.</p> <p>Sensorika-M LLC Dmitrovskoye shosse 64, k.4 127474, Moscow, Russia Tel.: 487-0363 Fax: 487-7460 http://www.sensorika.com info@sensorika.com</p>	<p>SOUTH KOREA.</p> <p>Santec Co 322, Wongok-dong Danwon-gu Ansan-si Kyunggi-do, 425-850 Tel : +82-31-493-1162 Fax: +82-31-493-1164 http://www.santec.co.kr mailto:santec@naver.com</p>	<p>SPAIN</p> <p>Iberfluid Instruments C/ Cardenal Reig, 12 08028 BARCELONA Tel. 93 447 10 65 Fax. 93 334 05 24 myct@iberfluid.com http://www.iberfluid.com</p>
<p>SWEDEN, NORWAY, DENMARK</p> <p>BLConsult Rävbergsvägen 31 713 30 Nora, Sweden Phone: +46 (0) 587 153 20 Mobile: +46 (0) 70 663 19 25 Berndt.lundstrom@blconsult.se</p>	<p>SWITZERLAND</p> <p>ID&T GmbH Gewerbstrasse 12/a 8132 Egg (Zurich) Tel.: +41 (0)44 994 92 32 Fax: +41 (0)44 994 92 34 www.idtlaser.com info@idtlaser.com</p>	<p>TURKEY.</p> <p>Mates A.S. Gezegen Sok. N: 10 GOP ANKARA/TURKEY Tel.: +90 312 447 2192 Fax: +90 312 447 2193 www.mates.com.tr mates@mates.com.tr</p>
<p>UKRAINE.</p> <p>KODA Frunze st 22, 61002, Harkov, Ukraine Tel/fax.: +38 057 714 26 54 http://www.koda.com.ua mail@koda.com.ua</p>	<p>United Kingdom, Ireland</p> <p>Ixthus Instrumentation The Stables, Williams' Barns Tiffield road, Towcester, Northants, UK Tel.: 01327 353437 Fax: 01327 353564 www.ixthus.co.uk info@ixthus.co.uk</p>	<p>USA, CANADA</p> <p>IEM Corporation 850 River Street, Troy NY 12180-1239, USA Tel.: 518.268.1636 Fax: 518.268.1639 www.iem.net iskaggs@iem.net</p>