Kienzle RIBAS® Efficiency System

Peter Hecker
Kienzle Automotive GmbH

Fuel Efficiency by foresighted driving.

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Kienzle Automotive GmbH

The KIENZLE Automotive GmbH provides since more than 65 years Fleet operators, in Driver- and passenger safety, efficiency of fuel and maintenance costs processes.

As a long-time partner, we stand for the highest investment security and assist you personally on site.

- Established at 1946
- Over 200 employees
- 12 Offices
- >20,000 Customers
- ca.1,700 Authorized Workshops

MiX Telematics is present in more than 120 countries on six continents, with more than 1,000 employees

- Over 770,000 installed Onboard units worldwide
- >20,000 units on the Bus & Coaches market in EUROPE
- ..and in cooperation with the Kienzle Automotive GmbH since 1986.
Kienzle RIBAS® Efficiency System

1. Das RIBAS® Efficiency display rates in a realistic way based on economical criteria the driving behavior of each driver. An economical and farsighted driving leads to significantly less stress while driving and to a considerable extent reduction of fuel consumption and CO2 emissions.

2. Driving activities which are leading to an increased fuel consumption are getting detected and directly displayed onto the RIBAS® display.

3. Driving performances get summarized at the end of each week and forwarded in a report form automatically to each fleet manager, so that the strength and the weaknesses of each driver can easily get recognized and adapted for further fuel efficiency improvements.

4. Avoided fuel costs can for motivation purposes get rolled out proportionally afterwards to the drivers through bonus programs based on the evaluated informations.
Kienzle RIBAS® Efficiency System

*Optional Remote Download

Data Recording

Information Flow

Trust Center

Gelb - Vorwarnung
Rot - Überschreitung

Processing of Signals

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Direct Feedback (DF) over the RIBAS® Display

The RIBAS® Display is a driving behavior analyzer that informs each driver visually and acoustically everytime an economically inefficient driving event gets recognized.

The following events get recognized by the RIBAS® Display:

- Over Revving
- Idle Excessive
- Harsh Breaking
- Harsh Acceleration
- Over Speeding
Kienzle Information Management

Driver Rating Report

The detailed Driver Rating Report summarizes all driving performances and provides the driver with a detailed and concrete feedback of improvement potentials based on 5 types of policies for economic- and efficient driving and gets forwarded automatically to each driver by our system on a regular basis.

<table>
<thead>
<tr>
<th>Management</th>
<th>Controlling</th>
<th>Operativ</th>
<th>Driver Instructor</th>
<th>Drivers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Information Flow by reports</td>
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<td></td>
<td></td>
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<td>- Weekly</td>
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</tbody>
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Driver Feedback - Report

With the assistance of the RIBAS® Driver Rating Report the Driver has the possibility to recognize his weaknesses and to optimize well directed his driving behavior effective and independently.
Event Reduction - EVOBUS Citaro O 530

RIBAS® feedback > 4 Events < 36,82 l/100km

RIBAS® feedback > 73 Events < 53,28 l/100km
RPM range
## Route - Comparison

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vehicle Unit</strong></td>
<td>Citaro O 530</td>
<td>Citaro O 530</td>
</tr>
<tr>
<td><strong>Driver</strong></td>
<td>Driver ID <strong>Unknown Driver</strong></td>
<td>Driver ID <strong>Unknown Driver</strong></td>
</tr>
<tr>
<td><strong>Distance</strong></td>
<td>24,4 km</td>
<td>24,3 km</td>
</tr>
<tr>
<td><strong>Duration</strong></td>
<td>Start 16:04:20 Uhr</td>
<td>Start 16:05:54 Uhr</td>
</tr>
<tr>
<td></td>
<td>Duration 01:26:28 Std.</td>
<td>Duration 01:25:45 Std.</td>
</tr>
<tr>
<td><strong>Max. RPM</strong></td>
<td>2,300 Revs/min</td>
<td>1,600 Revs/min</td>
</tr>
<tr>
<td><strong>Max. Speed</strong></td>
<td>62,0 km/h</td>
<td>48,0 km/h</td>
</tr>
<tr>
<td><strong>Average Speed</strong></td>
<td>16,9 km/h</td>
<td>17,1 km/h</td>
</tr>
<tr>
<td><strong>RIBAS® Events</strong></td>
<td>73</td>
<td>4</td>
</tr>
<tr>
<td><strong>Fuel Consumption</strong></td>
<td>53,28 l/100km</td>
<td>36,82 l/100km</td>
</tr>
<tr>
<td><strong>Fuel Reduction</strong></td>
<td>- 44,7 %</td>
<td></td>
</tr>
</tbody>
</table>
Standard Driver Scoring Report

The Standard Driver Scoring Report summarizes the driving performances of all drivers in a detailed and assessed form. A bonus program can get entered into force on the basis of those results.

A Fleet Manager receives the Standard Driver Scoring Report generated and forwarded by our system automatically on a regular basis.

Management

- Controlling
  - Bonus Program
  - Econom. Department
    - Monthly

Operativ

- Fleet Manager
  - Weekly

Driver Instructor

- Weekly

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## Bonus Program - Sample

<table>
<thead>
<tr>
<th>Car Name</th>
<th>Site Name</th>
<th>Duration</th>
<th>Distance (Km)</th>
<th>Speed (Km/h)</th>
<th>Acceleration</th>
<th>Deceleration</th>
<th>Rev Range</th>
<th>Outside</th>
<th>Speed Range</th>
<th>Rating</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car 1</td>
<td>Site 1</td>
<td>14:00</td>
<td>113.20</td>
<td>99.50</td>
<td>99.10</td>
<td>99.80</td>
<td>99.40</td>
<td>99.60</td>
<td>99.90</td>
<td>99.90</td>
<td>99.90</td>
</tr>
<tr>
<td>Car 2</td>
<td>Site 2</td>
<td>15:30</td>
<td>112.30</td>
<td>99.10</td>
<td>99.80</td>
<td>99.90</td>
<td>99.50</td>
<td>99.70</td>
<td>99.80</td>
<td>99.80</td>
<td>99.80</td>
</tr>
</tbody>
</table>

- **Less than 95%**: Driving Behavior with improvement potential
- **More than 95% and less than 97%**: Economical Driving Behavior
- **Over 97%**: Excellent Driving Behavior

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Kienzle Information Management

Reporting

With the support of the Kienzle Information Management system more than 200 reports can get generated with powerful results which can lead your company to be more efficient and profitable.

All reports can get created easy and simple. This ensures that all relevant information are available anytime and anywhere.

Management
- Company Management
  - Monthly

Controlling
- Premium Distribution
- Econom. Department
  - Monthly
  - Weekly

Operativ
- Fleet Manager
- Technical Department
  - Weekly

Driver - Instructor
- Driver Coach
  - Weekly

Drivers
- Information Flow by reports.
  - Weekly
# How we do it?

<table>
<thead>
<tr>
<th>Exposition of realistic economy potentials</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Bonus program key figures,</td>
</tr>
<tr>
<td>• calculated duration time of ROI</td>
</tr>
<tr>
<td>• Final comprehensive analyzed summary report.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Training of:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• drivers, driver trainer</td>
</tr>
<tr>
<td>• technicians</td>
</tr>
<tr>
<td>• management.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hardware Installations</th>
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<tbody>
<tr>
<td>• Current Real Data - Recording</td>
</tr>
<tr>
<td>• Information Flow - Assignments</td>
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</tbody>
</table>

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<tr>
<th>Capture of Company Data and Specifications</th>
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</thead>
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<tr>
<th>Establishment of a DATA Privacy Agreement</th>
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</table>
Our project management team will assist you permanently from the beginning of the project by capturing your needs until the final determination of your detected saving potentials.

- DIN EN ISO 9001 / DIN EN ISO 14001
Autarkic Measurement - Fuel Station

Quelle: BOGESTRA

Quelle: Fuel Station SVG

Kraftstoffverbrauch 2012
Kraftstoffverbrauch 2013
Kraftstoffverbrauch 2014

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First results with batterie E-Bussen

- **First results with BYD-Batterie E-Bussen at the Go-Ahead London**
  - 13 miles track length
  - Downtown London with ca. 90 min drive time in the rush hour

**without** evaluation criteria **ca. 60 miles distance**

**with RIBAS® criteria** **ca. 100 miles distance**

**Benefits for electric buses**
- Lower energy consumption and thus significantly extend the range.
- Longer battery life due to less charge cycles.
RIBAS® Customers - Public Transport

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Your benefits:

- Permanent valuation of your Fleet
- Evaluation, Improvement and support on economic and foresighted driving behavior
- Driver stress reduction - Improvement quality of life
- Significant reduction of carbon emissions
- Significant reduction of Fuel consumptions
- Reduction of wear and resources
- Accident reductions
- Increase of passenger comfort
Thank you for your attention.

Further Informations about our RIBAS® Efficiency system at:

http://www.kienzle.de/ribas