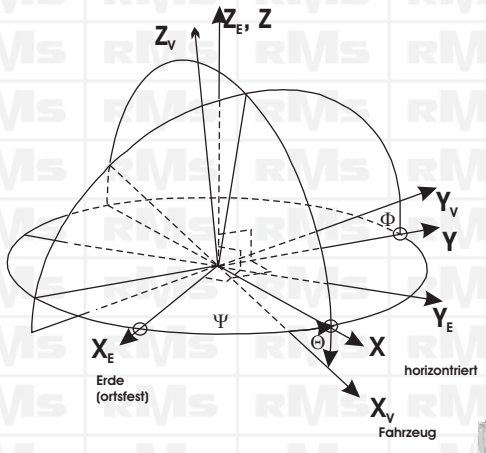
FES 44
strap-down Gyro System



In 1991 RMS first started to think of a next generation gyro system to substitute their conventional cardanic platform systems FEP and presented the first Strap Down Platform FES33 to the market in 1992.

In 2002 with over 40 years experience in building gyro systems for vehicle driving dynamics analysis the FES44 was created, an inertial measurement system that manages a perfect union of performance and efficiency.

Advantages:

- Small compact external sensor block
- Highly accurate & reliable
- Easy operation (On/Off/Reset)
- Earth drift compensation
- Low energy requirement
- No calibration
- Long term stability
- High alignment quality
- Quick installation
- High shock and vibration resistance
- Output signals analog / digital (Can Bus)
- GPS guidance (option)

Application:

- Vehicle dynamic behavioral testing per DIN ISO standards
  (example: steady state circular test, acceleration/deceleration slalomtest),
- Lateral transient response tests
- Motorcycle and ship model testing
- Road Topography
- Track analysis (banking)
- Tyre examination
- Aerospace tests

..... one Button Operation...

...on external remote control

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Concept

Three fiber optic gyros and three high accuracy servo accelerometers continuously measure the linear acceleration and angular rates of a vehicle in its body axes to determine motion and track. The system consists of the compact sensor block and an electronic rack with integrated computer.

An internal calculation enables the analog and digital (Can Bus) output of pitch, roll and yaw angle as well as longitudinal, transversal and vertical acceleration within the horizontal coordinate system. The calculation algorithms are optimized for dynamic car testing and take into account the influence of the gravitational acceleration and rotation of the earth. Furthermore the system comprises a Kalman filter for signal optimizing.

Before the FES can start measuring the platform has to align horizontally and has to set heading reference. This alignment of app. 120-150 seconds comprises the finding of the local artificial horizon and to assign an azimut direction. The FES system is able to align itself without any input of the geographical position.

An external speed signal enhances the accuracy of the position data und rate angle stability.

For topographic application a GPS guidance is optionally available.

Technical Data

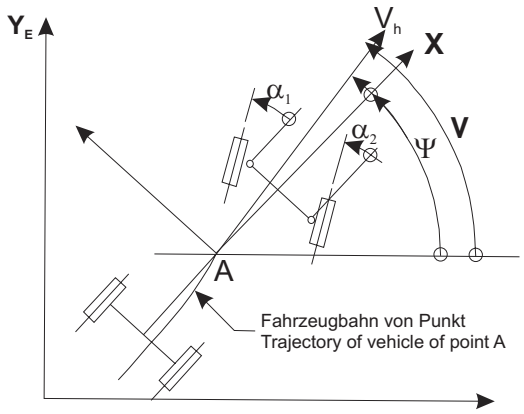
Gyro

- 3 ea. closed loop fiber optic gyros
- Measuring range: yaw/roll/pitch ± 360/100/100°/s
- Zero stability: 0,5°/h
- Scale factor accuracy: better than 0,1 %

Accelerometer

- 3 ea. Servo accelerometers
- Measuring range: ± 2 g (max. 5 g)
- Accuracy: better than 1 mg
- Resolution: 0,1 mg

System



- Angle measurement range: yaw/roll/pitch ± 180/60/60°
- Angle measurement accuracy: better than 0,1° (0,05°)
- Angle resolution: 0.005°
- Measuring axis misalignment: < 1mrad
- Alignment: automatically (120-150 seconds)
- Data output rate: 200 Hz
- Input for external GPS receiver (option)
- Velocity input (Vx) Odometer, analog (TTL option)
- Voltage Supply: ±10 30 V
- Dimensins sensor block: app. 170 x 139 x 180*
- Dimensions Electronics: 19“ x 88 x 450*, or portable app.: 360 x 170 x 300*
- Weight: app. 2 kg/6 kg (sensor/electronics)
- Temperature range: 30° - + 60°C

*all dimensions in mm (**w** x **h** x **d**)

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