ABOUT US

Facts and Figures
About us

Profile

<table>
<thead>
<tr>
<th>Milestones</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000 Foundation of ascos service by E.ON Ruhrgas</td>
</tr>
<tr>
<td>2002 The reference network covers the whole of Germany</td>
</tr>
<tr>
<td>2008 Foundation of AXIO-NET GmbH by Allsat GmbH and EADS Astrium</td>
</tr>
<tr>
<td>2009 Set-up of international services in Denmark, Great Britain and the Netherlands</td>
</tr>
<tr>
<td>2013 100% subsidiary of Airbus Defence &amp; Space</td>
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<table>
<thead>
<tr>
<th>Short Facts</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 years of experience</td>
</tr>
<tr>
<td>15 employees</td>
</tr>
<tr>
<td>52° 22' N 9° 43' E</td>
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</table>
Subsidiary of Airbus Defence&Space

Military Aircraft
- A400M, A330 MRTT, CN235, C212, Orlik
- Eurofighter, Tornado, etc.

Electronics
- Radare und IFF-Systeme, etc.
- Elektronik und Komponenten für Raumfahrtplattformen

Space Systems
- Ariane 5, Automated Transfer Vehicle, Beobachtungssatelliten (Spot, TanDEM-X, TerraSAR-X, Internationale Raumstation (ISS), interplanetare Raumsonden (Herschel, Mars Express, Solar Orbiter)

Communication, Intelligence and Security (CIS)
- Überwachungs- und Sicherheitslösungen, Secure Communications Solutions, Cybersicherheit, Küstenüberwachungs- systeme, Nato Satcom Post-2000, drahtlose Intranetlösungen für Einsatzgebiete, Farmstar Expert, Tetra Systems, GNSS Services

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About us

Products & Services

• GNSS-Reference networks
  ➢ Provider of GNSS-servcies throughout Germany, Great Britain, Denmark and the Netherlands
  ➢ Design, setup and operations of reference networks
  ➢ Monitoring
  ➢ Consulting

• System integration and projects
  ➢ Individual solutions for all areas of precise positioning applications: surveying, forestry, agriculture, railway, automotive, aviation, shipping industry …
  ➢ Developing of and consulting for individual solutions
About us

References

• **GNSS-services:** providing the satellite-based reference networked service „ascos satellite positioning service“, established in 1999

• **FarmRTK:** special service for agricultural applications in Germany, Great Britain, Denmark and the Netherlands ([www.farmrtk.eu](http://www.farmrtk.eu))

• **AXIO-NET GB:** correction data service throughout Great Britain using more than 150 reference stations

• **Femern Belt Positioning System:** designing, establishing and operating the GNSS reference network to support construction works of the fixed link across Femern Belt ([www.femern.com](http://www.femern.com))

• **John Deere StarFire Mobile RTK:** providing the positioning service to John Deere customers for precision farming
PRODUCTS AND SERVICES

Correction Data, Processes, Support
Products and Services

Reference Network 2012

- Design, installation and operation of GNSS-reference networks
- More than 400 reference stations throughout Germany, Denmark, Great Britain and the Netherlands

Reference station operators:

Cooperation:
Products and Services

Real-Time And Postprocessing Services

- PED (+2cm)
- ED (±30 – ±50cm)
- ED Max (<30cm)
- Trans
- NET (>1m)
- EU (±30 – ±50cm)
- ViPP (>1cm)
- ePP-NET (<1cm)

Services

- Monitoring
- Technical Support
- Certified Quality
Products and Services

Services and Accuracies

<table>
<thead>
<tr>
<th>Receiver Type</th>
<th>Real-Time</th>
<th>PP</th>
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<tbody>
<tr>
<td>AXIO-NET NET</td>
<td>NET &gt; 1m</td>
<td>NET &gt; 1m</td>
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<tr>
<td>AXIO-NET ED</td>
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<td>ED &gt; 30cm</td>
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<tr>
<td>AXIO-NET ED Max</td>
<td>ED Max &gt; 10cm</td>
<td>ED Max &gt; 10cm</td>
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<tr>
<td>AXIO-NET PED</td>
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<tr>
<td>AXIO-NET ePP-NET</td>
<td>ePP-NET 1-2cm</td>
<td>ePP-NET 1-2cm</td>
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<tr>
<td>AXIO-NET ViPP</td>
<td>ViPP &lt; 1cm</td>
<td>ViPP &lt; 1cm</td>
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Metre

0,005 0,01 0,02 0,05 0,1 0,3 0,5 1 2 3 5 10 15

Receiver Type

L1 + L2 Receiver  L1 Receiver Code + phase smoothing  L1 Receiver Code

RTK-Service

server-basiertes Postprocessing

RINEX
Products and Services

Processes

- Reference Stations
  - Hardware
  - Set-up
  - Monitoring
  - Maintenance

- Raw Data Collection
  - Network Design
  - Reliability
  - Monitoring

- Raw Data Processing
  - Computing Center
  - Software standards
  - Reliability
  - Monitoring

- Delivery of Correction Data
  - GSM/GPRS/UMTS
  - SIM-Cards
  - Internet
  - Radio Broadcast
  - Satellite (SBAS)

- Sales & Customer Support
  - Tariffs
  - Contracts
  - Hotline
  - Support Invoicing
Technology

Operations & Services

• RTCM-standardised services

• Independent of hardware manufacturers, compliant with almost every rover by Leica, Javad, Trimble, Topcon, Novatel, Geomax, Stonex, Thales, …

• Independent of software provider
  GNSS networking software by all major suppliers:
  ➢ Geo++ (GNSMART)
  ➢ Leica (GNSS Spider)
  ➢ Trimble (GPS Net)

• Real-time monitoring
SERVICE & SUPPORT

Quality and Branches
Service and Support

Service Center

• Product information, technical and tariff consultancy via telephone and e-mail
• Consultancy in GNSS-positioning and geodetic coordinates
• Consultancy in contracts and tariffs
• Office hours from Monday to Friday: 08:00 a.m. to 06:00 p.m.
Beratung und Support

InfoApp

- Kostenfrei nutzbar für AXIO-NET und FarmRTK Kunden
- Aktueller Status der Referenzstationen und des Netzwerkes
- Auswirkungen ionosphärischer Aktivitäten
- Echtzeitinformationen und Alarmmeldungen
- Weitere Funktionalitäten in Vorbereitung
Quality
Certified

• The first GNSS correction data service certified by TÜV / NavCert
  ➢ Accuracy of measurements: 2 cm in real-time
  ➢ 99% availability of correction data service
  ➢ High quality of service
    (availability and response time)
• Certification according to ISO 9001:2008
Branches

Covering all

- Surveying
- Machine control
- Agriculture
- Public Utilities
- Forestry
- Rail & roads
- Marine navigation (coastal area)
- Gardening & landscape gardening
- Mining
- GNSS network owners
- etc.
PROJECTS

Femern Belt
Projects

Femern Belt Positioning System (FBPS)

- Design, set-up and operation of FBPS
- Set-up of a GNSS reference network to support all construction works for the Femern Belt Fixed Link
- Compliance with the very high requirements regarding accuracy, reliability and signal coverage
- Design & installation in 2009/10
- Operation since 08/2010
Projects

Femern Belt Positioning System (FBPS)

- 4 reference stations (2 in Femern and 2 in Lolland)
- High level of redundancy for high reliability
- Monitoring, inspection and maintenance
Projects

Femern Belt Positioning System (FBPS)

<table>
<thead>
<tr>
<th>Reliability</th>
<th>Accuracy</th>
<th>Availability</th>
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<tbody>
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</tbody>
</table>

Accuracy:
- Horizontal: 0.8 cm (0.71 cm)
- Vertical: 1.6 cm (0.81 cm)

Availability:
- Area 1
- Area 2
- Area 3
PROJECTS AND APPLICATIONS

FarmRTK – www.farmrtk.eu
Projects and Applications

Precision Farming – AXIO-NET FarmRTK

- Area-wide accuracies of 2 cm in real-time
- All from a single source: SIM cards, correction data and service
- High degree of absolute accuracy and repeatability
- Individual solutions for special applications
- Set-up and operation of local reference stations or networks which are integrated in the networking and the monitoring provided by AXIO-NET
- Monitoring and maintenance supplied by AXIO-NET
- High-quality and redundant hardware
- Certified quality
Service and Support

FarmRTK Portal

- Free of charge
- Login status history
- Additional information
- System status
- Support Tool
Thank You for Your Attention.

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