



In-Vehicle Monitoring System (IVMS) for road safety and better driving behavior

Innovation and precision for better IVMS management

- Industry practices, reasons for IVMS, benefits
- IVMS devices, accessories, installation, partners
- IVMS software requirements, reports, alerts
- Journey management

RAG Report Events Report		Events	Harsh Accelerations and	Records (Rewards/Violations)	Faults
Actions	Rang	Driver	Score	Score	Nightdriving Alarms
	1	Karl	1481,722		
	2	Driver	2290,552		
	3	Driver	2582,572	568	
	4	Driver WU Schneid11	2965,496		
	5	Driver Traktor Kugelmann	3102,178	254	
	6	Vertrieb KH	4771,107		
	7	Driver AT5 Test	5344,850		
	8	Driver OBD-HB Test	6764,436		
	9	Milan	8513,083	5610	
	10	Bernd	9939,047		

Software-Management GmbH
 Linzer Straße 61/5
 4840 Vöcklabruck, Austria
 Tel: +43 7672 31788
info@gps.at

For German Customers:
 Hopfenstraße 8
 80335 Munich, Germany
 Tel: +49 89 125013900
info@gpsfleetsoftware.com





In-Vehicle Monitoring System (IVMS)

The global necessity for safe and environmental friendly transportation

Sound business practices in transport have become a necessity.

- Transportation, operation fleets and driving vehicles is a major expense for any business, thus cost control is necessary for prudent management.
- Every year, road fatalities and accidents causing deaths and heavy injuries are a severe issue that no one likes to deal with. A company with a safe driving policy is doing everything to reduce the number of accidents and consequently also lowers the costs associated with the severe road accidents.
- A reliable company with a good reputation will do everything to train the drivers to drive their vehicles carefully and to attain to life-critical rules.
- Global players such as SHELL keep their drivers safe through periodic training, by limiting their journeys, avoiding too long driving hours and by enforcing road safety standards.



IVMS rules & standard

- The oil & gas industry is the major driver for enforcing stricter IVMS standards. The names of the IVMS standards differ from country to country, for instance, in Oman it is called OPAL Road Safety Standard 2017.
- Most standards follow the same principle rules and procedures and companies and subcontractors that work in the oil & gas industry are obliged to fulfill the criteria.

Major goals of road-traffic-safety systems

- To foster environmental friendly, safe and economical driving style
- To reduce the number of (fatal) accidents for the corporate fleet
- To avoid unnecessary trips with better planning and unnecessary risks (by fatigue driving)



No alcohol or drugs while working or driving



While driving, do not use your phone and do not exceed speed limits



Wear your seat belt



Follow prescribed Journey Management Plan

4 life-saving rules for drivers





IVMS GPS Tracking devices

Fleet-10 GPS device for standard IVMS features

The GPS Telematic device (on board computer) is a key element for data recording and therefore it must fulfill highest quality standards:

- Made from reliable producers
- 4 digital inputs for connecting ignition, seatbelt violations, panic button
- Authorized driver scenarios using driver identification
- On board local data storage for saving second-by-second accident data
- Events for harsh braking and harsh acceleration
- Recognizing power or battery disconnection or tampering situations
- Second-by-second data for accident analysis



Advanced features

- FMS CAN-High and CAN-Low connection for trucks
- CANBUS data adaptor for more than 400 different light and commercial vehicles
- RS232 interfaces for serial data communication for sensor data

Future hardware highlights

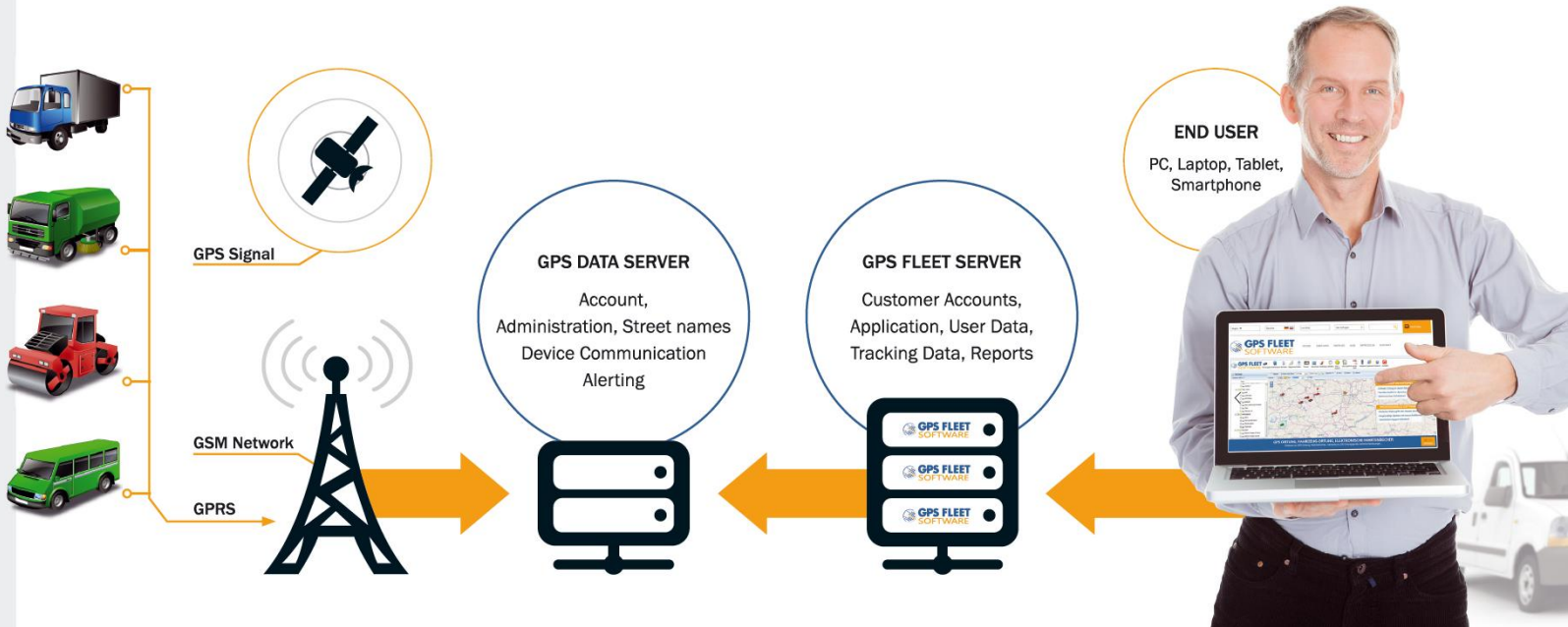
- H2S gas detector for gas leaks and faster evacuation
- Tire pressure sensors to high costs and accidents due to bad tires

IVMS Red-Amber-Green overview

Rank	Driver	Total Distance [km]	Total Acceleration Count	Accelerat... per 100 km	Total Decelerations Count	Deceleratio... per 100 km	Highest Speed [km/h]	Total Over-Speeding Time [min]	Speed for each 10 sec per km	Score	Nightdriving Alarms	Continuing Driving Alarms
1	Karl Kurz	1051,547	0	0,0	0	0,0	91	99	566,9	1481,722	0	0
2	Driver Arocs CAN	1103,446	0	0,0	0	0,0	95	250	1361,4	2290,552	0	0
3	Driver MHODB2	697,754	0	0,0	0	0,0	150	173	1492,4	2582,572	5689	0
4	Driver WU Schneid11	2750,703	0	0,0	0	0,0	106	1319	2877,1	2965,496	0	0
5	Driver Traktor Kugelmann	560,735	0	0,0	0	0,0	56	115 1232,132825...		3102,178	2549	0
6	Vertrieb KH	976,985	1	0,1	0	0,0	142	451	2773,5	4771,107	0	0
7	Driver AT5 Test	163,709	4	2,443359864...	8	4,9	142	64	2372,5	5344,850	0	0
8	Driver OBD-HB Test	514,544	43	8,4	61	11,9	143	362	4229,6	6764,436	0	0
9	Milan	464,767	0	0,0	0	0,0	91	659	8513,1	8513,083	56101	0
10	Bernd	170,459	0	0,0	0	0,0	92	282	9939,0	9939,047	0	0



IVMS Software basics



How to make an IVMS system run

GPS signal

- Our devices use the American GPS and the Russian GLONASS as well as Galileo to document the driving track and speed.
- If there is no GPRS network coverage, the tracking data is stored on the device

What about the SIM cards?

- Your IVMS vendor will take care for supplying the necessary data SIM cards

GPS Data Servers

- All data is sent to the global GPS Data Server that can be hosted by us, the vendor or by big customers.
- All tracking data can be stored locally in your company (respectively country)
- Different customer account can be safely operated on one GPS Fleet Server that can be hosted by the vendor.

Important general requirements

- Works with different mapping and reverse geocoding sources such as OpenstreetMaps, Google Maps, TeleAtlas
- Multilingual web-based software
- Reports can be downloaded as PDF or Excel or generated automatically via Email
- Future updates and customization are possible
- APIs and JSON interfaces are available
- European quality software documentation and quality control with testing scenarios
- Smartphone apps are available

Important standards

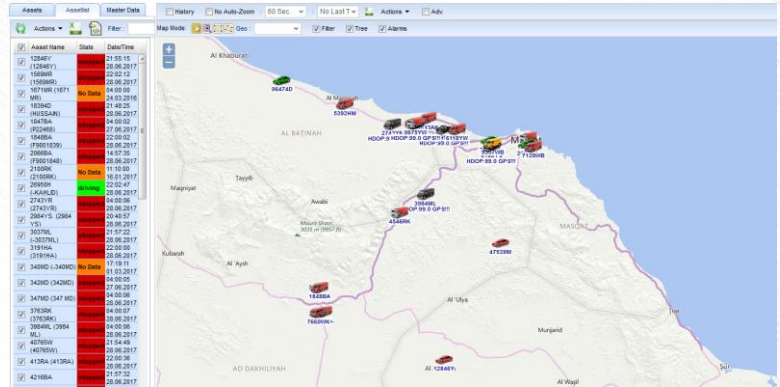
- ✓ Complies with OPAL Road Safety Standards 2017
- ✓ SP2000 Road Safety Standard
- ✓ Other certifications are possible at any time upon request



Special IVMS Module

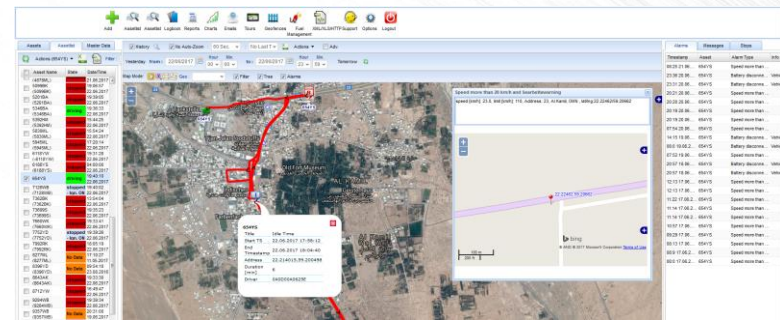
Current fleet position at a glance

- Map overview with asset symbols and status colours
- Use different maps
- Show geofence hotspot areas
- Asset lists with colour codes and add-on information



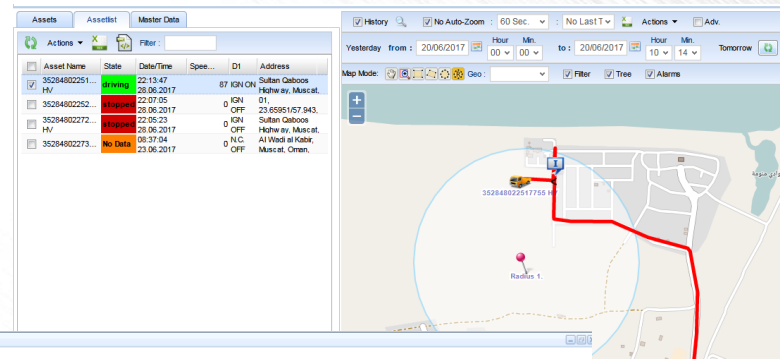
Analyzing past and events and speeds

- Displaying historic trips and stops for several days on the map
- Analyze events, alerts and driving speed and additional data
- Working with different speed limits depending on road types and day vs. night time



Work with geofence areas

- Display geofence areas in the map as polygon, circle or square
- Import contacts as geofence
- Flexible alerts when entering/leaving a designated hotspot (based on time requirements, different assets, via sms, email or call)



Filter for specific events

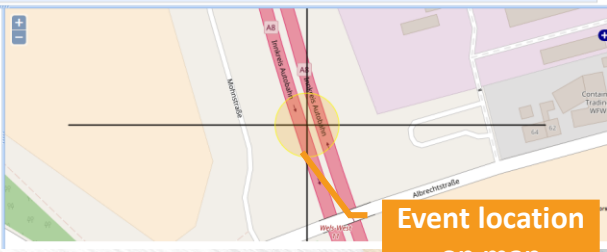
LSR	Asset Name	Driver	Event	Start	End	Asset	Person	Speed-Limit (km/h)	SpeedType	Average Speed	Maximum Speed	End Timestamp	End Address	End Geofence	Falsch.
	MH-0202	Driver MH0202	Excessive Driving - Breaking too at Controlling Driving - Daily Driving The Night Driving	00:07:48.1651.13.9606	00:01:55	Unbekannt		89	7	60.0	60.0	08.07.2017 13:32:02	Stadlern 1, 4623 Dunschen, AUT		
	MH-0202	Driver MH0202	Temping (g off no movement)	21:57 Magazinstraße 16, 4600 Weis, AUT	00:07:38	Unbekannt		89	47.1	47.1	47.1	08.07.2017 12:37:28			
	MH-0202	Driver MH0202	Seabell Violation	20:39 Rallschulgasse 10, 4600 Weis, AUT	00:00:02	Unbekannt		89	29.0	29.0	29.0	08.07.2017 12:37:28			
	MH-0202	Driver MH0202	LSR Speeding	17:20 Lutzer Straße 197, 4600 Weis, AUT	00:01:34	Unbekannt		89	51.0	51.0	51.0	08.07.2017 12:37:28			
	MH-0202	Driver MH0202	Sitzgurtpflichtverletzung	08.07.2017 13:15:53 Lutzer Straße 260, 4600 Weis, AUT	00:00:35	Unbekannt		89	55.2	60.0	60.0	08.07.2017 13:16:26	Wiener Straße 221, 4600 Weis, AUT		
	MH-0202	Driver MH0202	Sitzgurtpflichtverletzung	08.07.2017 13:15:22 Mittenhofenstraße 10, 4600 Weis, AUT	00:00:00	Unbekannt		89	115.2	136.0	136.0	08.07.2017 12:37:26	45 19024.14 0766		
	MH-0202	Driver MH0202	Geschwindigkeitsüberschreitung	08.07.2017 12:32:18 48 15356.13.9629	00:05:08	Unbekannt		89	114.5	136.0	136.0	08.07.2017 12:37:36	45 19024.14 08017		
	MH-0202	Driver MH0202	Geschwindigkeitsüberschreitung	08.07.2017 12:31:27 48 15356.13.9629	00:05:18	Unbekannt		89	114.5	136.0	136.0	08.07.2017 12:37:36	45 19024.14 08017		
	MH-0202	Driver MH0202	Sitzgurtpflichtverletzung	08.07.2017 12:31:27 48 15356.13.9629	00:08:34	Unbekannt		89	62.0	136.0	136.0	08.07.2017 12:40:01	Glockenstraße 27a, 4600 Weis, AUT		
	MH-0202	Driver MH0202	Sitzgurtpflichtverletzung	08.07.2017 12:10:59 Mellenstraße 7, 4600 Weis, AUT	00:01:23	Unbekannt		89	37.3	50.0	50.0	08.07.2017 12:12:21	Glockenstraße 1, 4600 Weis, AUT		

max, average speed and duration

Event details

Driver MH0202
 Name: Geschwindigkeitsüberschreitung 2
 Start TS: Samstag, 08. Juli 2017 12:32:18
 End Timestamp: Samstag, 08. Juli 2017 12:37:28
 Start Address: 48 15356.13.9629
 End Address: 45 19024.14 0766
 End Geofence:
 Duration: 00:05:08
 Start Speed: 102 (km/h)
 End Speed: 191 (km/h)
 Speed Limit: 89 (km/h)
 Maximum Speed: 136 (km/h)
 Comment:
 Falschalarm
 Update

Add a comment and mark as wrong alert



Event location on map

IVMS parameter, events and reports

Special IVMS Event Parameter Settings

Our software works with all important IVMS events. All IVMS alarms can be managed and configured in the software:

- ✓ Road-based speed alerts (Driving at speed higher than 10km/h above the speed limit for consecutive 30 seconds)
- ✓ Overspeeding in geofence areas
- ✓ Excessive Over Speeding (life-safety critical event)
- ✓ Seatbelt Violations
- ✓ Harsh Braking
- ✓ Night Driving alerts for driving outside geofence areas for a longer period
- ✓ Panic button pressed for the duration exceeding 5 seconds
- ✓ Power/Battery Disconnection and tampering alerts (movement without ignition)
- ✓ Exceeding driving time limits for light and heavy vehicles



RAG Event Reports (Red-Amber-Green scoring)

- Driver based rating with clear scoring best to worst drivers
- Monthly Report of the IVMS Vendor

IVMS Event Reports

- Harsh Braking Monthly Report
- Over-Speeding Monthly Report
- Event reports for un-authorized night driving or exceeding driving times

Modify RAG settings

Different alert modes

Minimum speed

Exceeding driving time for heavy and light vehicles

Special IVMS events

- IVMS Lost Key Report
- Tampering or fault report

Important Journey Management Module

Reasons for journey management

- Responsible for safety during transport
- Reduce unnecessary night driving
- Check arrivals, departures and break times
- Control of checkpoints and contact drivers that are late
- Provide journey management plan to drivers

Journey management with printout journey form

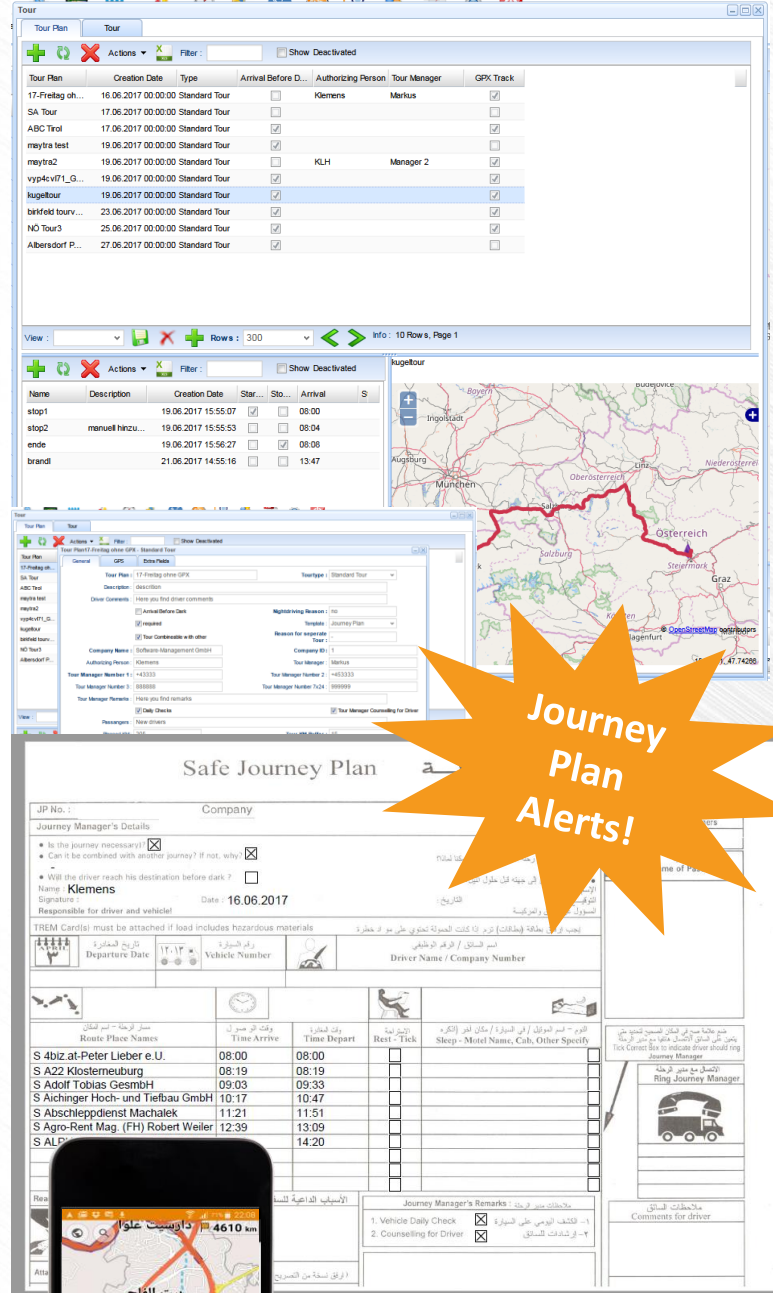
- Create journey tour plans in the software that can be re-used
- Define route, checkpoints and time to arrive at the check points
- The journey plan can be printed out as PDF with flexible fields (passengers, comments, checkboxes, etc.)

Automatic journey plan alerts

- Trigger alert if journey is not started on time
- Alert if checkpoint is not reached or left on time
- Alert if break time at the checkpoint is too short

Advanced tour services

- Starting and stopping tours with offline navigation on a smartphone device
- Tour overview reports



Journey Plan Alerts!

Tour Plan	Creation Date	Type	Arrival Before D...	Authorizing Person	Tour Manager	GPX Track
17-Freibag oh...	16.06.2017 00:00:00	Standard Tour	<input type="checkbox"/>	Klemens	Merkus	<input checked="" type="checkbox"/>
SA Tour	17.06.2017 00:00:00	Standard Tour	<input type="checkbox"/>			<input type="checkbox"/>
ABC Tirol	17.06.2017 00:00:00	Standard Tour	<input checked="" type="checkbox"/>			<input type="checkbox"/>
mayfra test	19.06.2017 00:00:00	Standard Tour	<input checked="" type="checkbox"/>			<input type="checkbox"/>
mayfra2	19.06.2017 00:00:00	Standard Tour	<input type="checkbox"/>	KLH	Manager 2	<input checked="" type="checkbox"/>
vyp4cvt1_G...	19.06.2017 00:00:00	Standard Tour	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
Jugeltour	19.06.2017 00:00:00	Standard Tour	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
bitfield tourv...	23.06.2017 00:00:00	Standard Tour	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
HO Tour 3	25.06.2017 00:00:00	Standard Tour	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
Albersdorf P...	27.06.2017 00:00:00	Standard Tour	<input checked="" type="checkbox"/>			<input type="checkbox"/>

Name	Description	Creation Date	Star...	Sto...	Arrival	S
stop1		19.06.2017 15:55:07	<input checked="" type="checkbox"/>		08:00	
stop2	manuel hanzu...	19.06.2017 15:55:53	<input type="checkbox"/>		08:04	
ende		19.06.2017 15:56:27	<input checked="" type="checkbox"/>		08:08	
brandl		21.06.2017 14:55:16	<input type="checkbox"/>		13:47	

Route Place Names	Time Arrive	Time Depart	Rest - Tick	Sleep - Motel Name, Cab, Other Specify
S 4biz.at-Peter Lieber e.U.	08:00	08:00	<input type="checkbox"/>	
S A22 Klosterneuburg	08:19	08:19	<input type="checkbox"/>	
S Adolf Tobias GesmbH	09:03	09:33	<input type="checkbox"/>	
S Aichinger Hoch- und Tielbau GmbH	10:17	10:47	<input type="checkbox"/>	
S Abschleppdienst Machalek	11:21	11:51	<input type="checkbox"/>	
S Agro-Rent Mag. (FH) Robert Weiler	12:39	13:09	<input type="checkbox"/>	
S ALP...		14:20	<input type="checkbox"/>	



GPS.AT
SOFTWARE-MANAGEMENT GmbH



Contact us or our local partners

Local certified IVMS vendor for Oman:



الضوء الأبيض للخدمات والتجارة ش.م.م
White Light Services & Trading L.L.C

P.O Box: 1197, P.C: 112
Ruwi, Sultanate of Oman
Tel. :+968 24811236 / 24814853
GSM: +968 91393836
Email : info@whitelight.om

Software Developing Headquarter Software-Management GmbH

Linzer Straße 61/5
4840 Vöcklabruck, Austria
Tel: +43 7672 31788
info@gps.at

For German Customers:

Hopfenstraße 8
80335 Munich, Germany
Tel: +49 89 125013900
info@gpsfleetsoftware.com



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www.gpsfleetsoftware.com