



ZF Bus Connect

Connecting you to the power
of vehicle data



ZF Bus Connect

Let Data Drive Your Decisions

A large vehicle fleet is a perfect symphony of moving parts. Vehicles, drivers, electric power, and combustion engines. Routes, fuel consumption, regulations, and compliance – all must work together in harmony for smooth and efficient operation. It is well known that what gets measured gets managed – do you know enough about your fleet to manage it effectively?

Connect, understand, and improve your fleet

ZF Bus Connect monitors drivers and vehicles using on-board units, then combines, analyzes, and displays this information to operators via one web-based portal. Reduce maintenance costs by setting up automatic alerts for vehicle conditions and diagnostic error codes. Keep drivers safe by tracking speeds and aggressive driving styles. Only by truly knowing what happens on the road can your fleet reach its full potential.



ZF Bus Connect animation

What we offer

Bringing You Real Fleet Management Benefits



Cost Effectiveness

Make fleet monitoring decisions based on knowledge – saving you time and money.



Increased Safety

Improve passenger safety through better driving practices and remote checks of vehicles' conditions.



Futureproofed

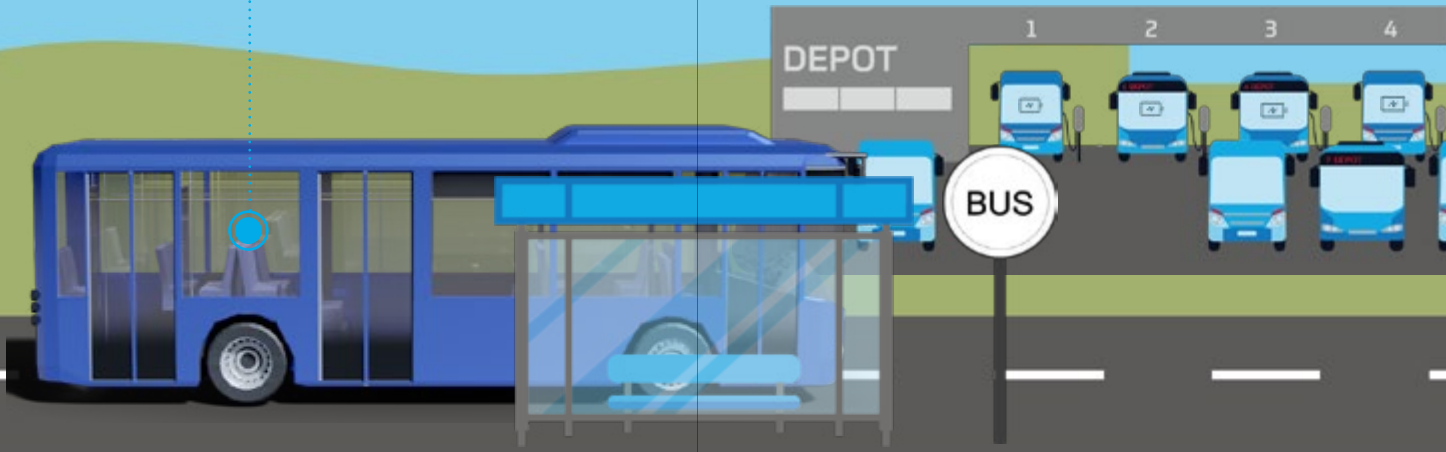
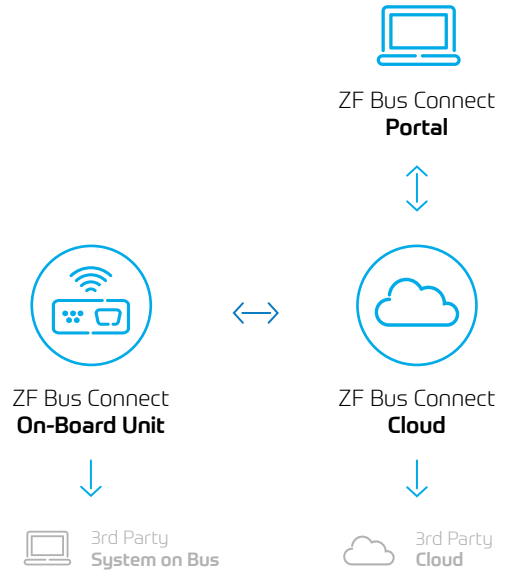
Benefit from a connectivity solution with different product variants and high integration capabilities – ideal for your hybrid and electric fleets.

“Choosing ZF Bus Connect offered true simplicity. Increasing operational efficiency, ZF Bus Connect has allowed our company to continuously improve our services.”

Timothy Wong,
COO – Kwoon Chung Bus Holdings Limited

All in One Package

ZF Bus Connect
one system, three areas



Benefits

Actionable insights for all fleets and vehicles

ZF Bus Connect has already helped many fleet operators improve their productivity and reduce their costs through enhanced data collection and real-time monitoring.

Connect your fleet

Suitable for city buses and coaches with both electric and combustion engines. Give live feedback to drivers on driving style and driver scoring with our Profi Driver App. Explore many other features for Bus Fleet Operators via one web based portal.



Area based speeding monitoring



Global presence



Flexible Data Link to log and transfer data



Ideal for mixed fleets



Pro-active remote vehicle inspection



Ready for electric and hybrid buses



Advanced evaluation of driving style



Improved fuel efficiency



High integration capabilities



Optimization of operation and processes



Increased passenger safety

Can ZF Bus Connect Help You?

Challenge

Our solution

- High fuel consumption of vehicles** → Detailed overview of fuel consumption and efficiency increasing tips.
- Manual timekeeping admin** → Real time monitoring of vehicles' Digital Tachograph.
- Low passenger comfort due to aggressive drive style** → Monitor driver behavior and performance to identify areas for improvement.
- High maintenance costs of vehicles** → Monitor vehicle error codes in real-time with Proactive notification.
- Missing black box functionality, no data transparency** → Single connectivity gateway with good integration possibilities and rich data logging options.
- Questionable Data Security** → Strict attention throughout development process to Data Security at all levels HW / Cloud / UI.



ZF Bus Connect Packages

Find the best solution for you

Find out more about our three different packages with various add-ons to protect, connect and improve any fleet.

From simple monitoring of a small fleet, to scaled-up, tailor-made tools for complex networks, ZF Bus Connect has a solution for your needs. Start by monitoring your vehicles and router, or expand to custom data analytics!



ZF Bus Connect

New user looking to start their connectivity journey

- Single powerful connectivity gateway for mixed fleet and electric vehicles
- Live view of fleets and vehicles along with logbook of driven routes
- Introduction to data analytics with consumption monitor and brake check



ZF Bus Connect Pro

Looking to expand to advanced features

- Improve driving practices with Profidriver and ensure compliance with digital record downloads
- Proactive vehicle inspection and remote diagnostics with vehicle inspector
- Access to rich data analytics
- Configurable user interface, thresholds and alerts, export to multiple formats and more



ZF Bus Connect Custom

Custom-designed features for unique business challenges

- Access to raw vehicle data and live data transmission to any cloud
- Complete flexibility to define data clusters, configurations, formats etc.
- Tailor-made solutions with custom analytics
- Alerts and notifications based on geo-fenced zone

Package Overview

				
 On-Board Unit (VCU Pro)		✓	✓	✓
 Cloud Hosting and Processing		✓	✓	✓
 Live View		✓	✓	+
 E-logbook		✓	✓	+
 Consumption Monitor		✓	✓	+
 Vehicle Inspector		✓		+
 Vehicle Inspector Pro			✓	+
 ProfiDriver			✓	+
 Digitacho Download			✓	+
 Pro Analytics			✓	+
 Custom Analytics				+
 Data Link				+
 Data Logger				+
 Geo Fencer				+

✓ Fully Included

+ Add-ons for Custom Variants

ZF Bus Connect Portal

Total Control for Bus Fleet Operators via One Web Based Portal



Live View

Real-time monitoring of fleets, vehicles and driving routes



E-Logbook

Driving history and replay of routes



Consumption Monitor

Overview of fuel consumption for combustion vehicles or SoC for electric



Profi Driver

Real-time feedback to driver and unique grading system of drivers' driving style



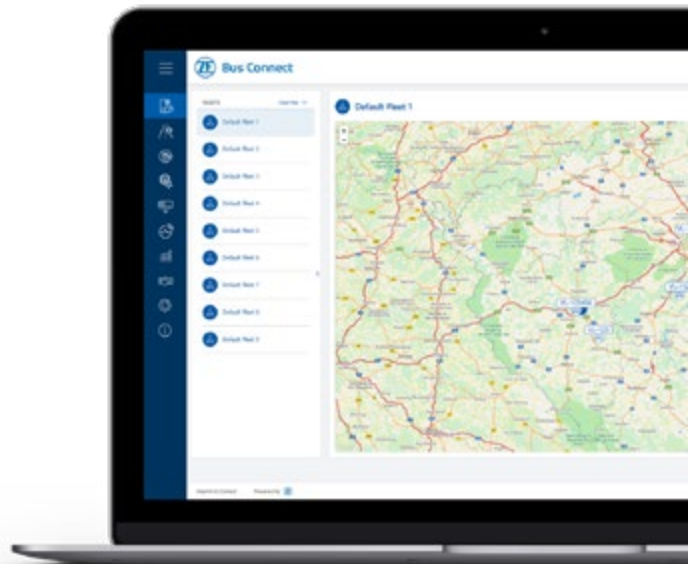
Digitacho Download

Download of driver card and mass memory files (DDD) to ensure working time compliance



Vehicle Inspector

Diagnostics-CAN signals in Live, Telltales, DM1 and Brake Pad Analysis



Pro Analytics

Access to Data Analytics on Power BI



Custom Analytics

Custom reports implemented for a specific customer



Data Link

IoT Data Link to send data directly to customer or 3rd party cloud



Geo Fencer

Alerts and notifications based on defined geo-fenced Zones



Data Logger

Continuous & Event-based data logging and storage



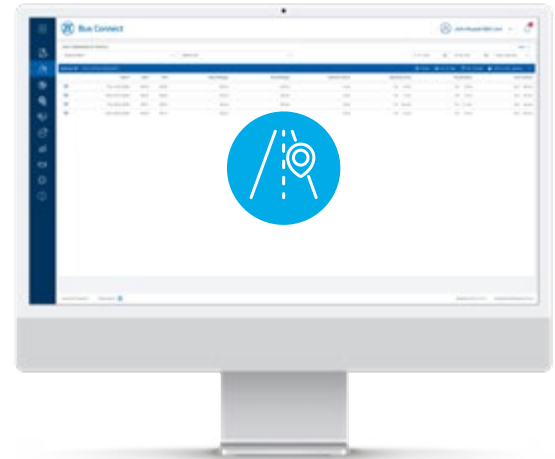
Live View

Features

- View live status and location of fleet vehicles on map display
- Show vehicle performance KPIs (fuel consumption, speed, trip duration etc.) in real time
- Access extended list of vehicle information such as trip line, geocoding, or a list of signals
- Flag critical asset states (defined by configurable thresholds) immediately
- Supports combustion, hybrid and electric vehicles, supports charging stations as well as mixed fleets with various vehicle types and manufacturers
- Dashboard supports multitenancy allowing for assigning one vehicle to multiple clients

Benefits

- Real-time view of all monitoring and diagnostic requirements
- Futureproofed for complex and modernizing fleets
- Trigger timely maintenance for improved fleet upkeep



E-logbook

Features

- Record vehicle information as well as individual vehicle routes with E-logbook app
- AI based advanced algorithm and Trip Model approach is designed to support different vehicle types (Ignition signal, E-drive signal, time-based)
- Configure trip definitions in master data
- Detailed statistics of individual trips such as average fuel consumption, driving speed, distance, and duration of the trip
- Integrated with ITCS (Intermodal transport control system)
- Report on SoC (state of charge)

Benefits

- Quickly and easily access historical trip data of individual vehicles in organized summary online
- Pay drivers according to how much they worked based on their driving activity
- Visualize multiple trips with accompanying data on the map



Consumption Monitor

Features

- Detailed overview of fuel consumption in various driving situations for different vehicle types (combustion, electric, hybrid)
- Precise information about current and historical consumption metrics of single vehicle or fleet (identification of both positive and negative trends)
- Adjustable thresholds for refueling or unexpected fuel level drops
- Definable alerts can be sent via sms or email

Benefits

- Improves transparency and reduces admin burden
- Efficient fuel theft protection – possibility to identify sudden high fuel consumption in context of the fleet
- Enables comprehensive vehicle management along with other vehicle KPIs and measures (financials, eco driving etc)



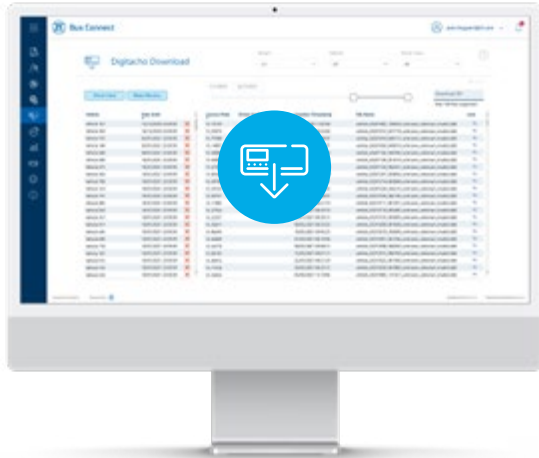
Profi Driver

Features

- Live feedback to driver if an event appears or monitored thresholds have been exceeded
- Regular scoring reports of drivers (daily, weekly, monthly) based on a grading system
- Controlled by the VCU Pro, configurable
- Event types – harsh braking/acceleration, overspeeding, overrevolving, cornering, trailer cornering, jerk
- Detailed report of events in Microsoft PowerBI Benefits
- Complete drivers scoring tool for fleet managers
- Data input for further analysis in ECO Scoring

Benefits

- Identify dangerous and unfavorable driving style to prevent accidents
- Improve passenger safety
- Reduce wear and tear on fleet vehicles from aggressive driving



DigiTacho Download

Features

- Gathers information on the driver's resting and driving times in DDD file formats
- Download data automatically from the mass storage and the driver card
- VCU Pro reads DDD files from all tachograph standards incl. DTCO 4.0 (Conformity EU 561/2006)
- Alarm raised if data not available
- Batch interface from the command line is supported
- Frequency of downloads is configurable with many options
- All data can be browsed and downloaded (individually as DDD or grouped as ZIP) from the data storage via DigiTacho Report

Benefits

- Ensures regular data storage compliance meets regulations
- Take immediate action during suspected manipulation attempts
- Easily view, search, and analyze downloaded data



Vehicle Inspector

Features

- Live statistics and alerts for electric and diesel vehicles in the fleet
- Analysis of brake lining remaining (BLR) for each wheel with configurable threshold levels
- Difference between brake lining thickness both on front and rear axles
- Active error codes in vehicles
- Overview of indicator lamps in vehiclecockpit
- FMS based diagnostics
- Transmits active error codes by all vehicle components that support J1939 Diagnostics
- Early warning with 75 indicators of vehicle component malfunction

Benefits

- Proactively monitor brake health
- Optimize maintenance and replacement schedules
- Improved vehicle, driver, and passenger safety

Another functions

Smart App with smart functions



Pro Analytics

- Pre-Defined Data Sets
- Self-Service Report Creation
- Select Thresholds and Alerts
- Export of Reports to XLSX, PDF
- Paginated Reports



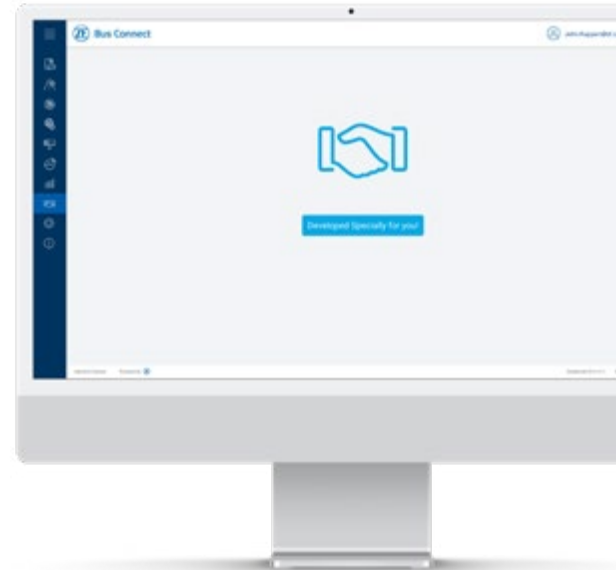
Custom Analytics

- Raw Data Sets
- Custom Report Design and Implementation
- Customise Thresholds and Alert Definition
- Export of Reports to XLSX, PDF
- Paginated Reports



Data Link

- Live Vehicle Data Transmission from your Fleet to any Cloud
- Rich Data Sources
- Configurable Data Clusters
- Conditional Data Collection and Configurable Transmission
- Multiple Data Formats



Data Logger

- Continuous logging mode for long term data acquisition
- Event-based logging enabling high frequency data recording with customizable pre- and post-trigger periods
- Black box functionality to store the defined data set directly on the device with the copy on server side for accidents investigation and reporting

VCU – Vehicle Communication Unit

Smart hardware,
simple process



Next-generation telematics interface

With the VCU Pro Onboard Unit, ZF offers fleet operators a new generation of progressive and robust telematics hardware.

VCU Pro is the advanced on-board unit from the Vehicle Connectivity Unit series. With 4 CAN interfaces (2 standard CAN and 2 CAN FD), 4 analog inputs and 4 digital outputs VCU Pro is a professional and robust vehicle gateway. Two independent processors ensure both a safe and secure connection to the vehicle network and also provide a universal communication capability.



Advantages

- Supports Bluetooth 4.2 and WiFi as well as all popular GNSS
- Two independent processors guarantee stable and secure connections to the vehicle's network
- Secure over-the-air updates
- Regionally adaptable LTE Cat4 versions
- Compatible with all popular commercial vehicle brands and thus ideal for mixed fleets
- Track multiple vehicle, route and driving behavior parameters in real time via the cloud



Technical Overview

- New generation of communication gateways by ZF
- Interfaces and functions for various application areas
- AI capable
- Secure connectivity with HSM
- VCU's Aurix extension module (safe data exchange)
- GNSS, 4×CAN(FD), GPIOs, Serial, Bluetooth, WIFI, Ethernet (1+2×BroadR)
- Compliant with IBIS and IBIS-IP

VCU Pro Onboard Unit

Dimensions (l × w × h)	200 mm × 122 mm × 40 mm
Operating temperature	-40 °C to +85 °C
Power supply	9 to 36 V DC
Internal memory	4 GB Flash
Sensors	3D accelerometer, 3D gyroscope
GNSS	uBlox NEO-M8L with Dead Reckoning

Highlights & Benefits

VCU Pro



High-precision geo-location

U-blox latest generation modem (Neo M8L) with 3D sensors and on chip-based dead reckoning with multiple navigation systems support (GPS/QZSS, GLONASS, BeiDou, Galileo).



Reduced connectivity costs

Integrated automotive ethernet – BroadR-Reach – standard design for use in automotive connectivity applications. Two separate boards – two separate networks (internal / vehicle, external / cloud-connected).



Latest safety and speed technology

Aurix automotive certified chip for safe internal communication and distributed memory protection systems. Data collection seconds after booting – crucial for vehicle startup.



Resilient and durable

Made of rugged materials and automotive-grade components (IP5K5, UN R118 – fire resistant housing).



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