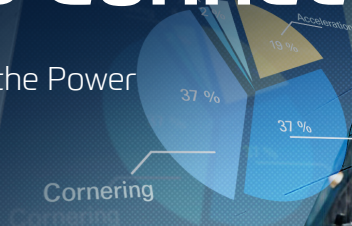


ZF Bus Connect



Connecting You to the Power
of Vehicle Data



SPEED



LIVEVIEW

Model



Climate

OUTDOOR

34.00

17:45

18:01 PM

OUTDOOR

OUTDOOR



Check out the ZF Bus Connect video

ZF Bus Connect

Let Data Drive Your Decisions

All bus operations from manufacturing and fleet management to servicing can be complex and challenging. That's why we developed ZF Bus Connect, digital solution that transforms data into insights. A solution for cost reduction, improved safety and increased uptime.

ZF Bus Connect for manufacturers, bus fleets and service providers

For bus manufacturers, ZF Bus Connect means seamless transition to e-mobility. Fleet managers gain valuable insights into fleet performance, enabling them to boost uptime, cut operating costs, and enhance safety and comfort of both passengers and drivers. In the era of software-defined and electric vehicles, coupled with a declining number of technicians, workshops are facing new challenges. Our diagnostic solutions not only save time but also guarantee compliance with service contracts.

Vision

**We shape a world of
seamless and efficient
bus operation**

Mission

For a sustainable future:

We empower bus operators, manufacturers and workshops to optimize fleet performance, uptime and safety based on connectivity, data analytics and vehicle knowledge.

Our Solutions to Your Challenges



ZF Bus Connect Manufacturer

- € Save millions of EUR for development costs
- € Improve warranty management with data-driven decisions
- € Comply with electric bus regulations and receive critical data in real time



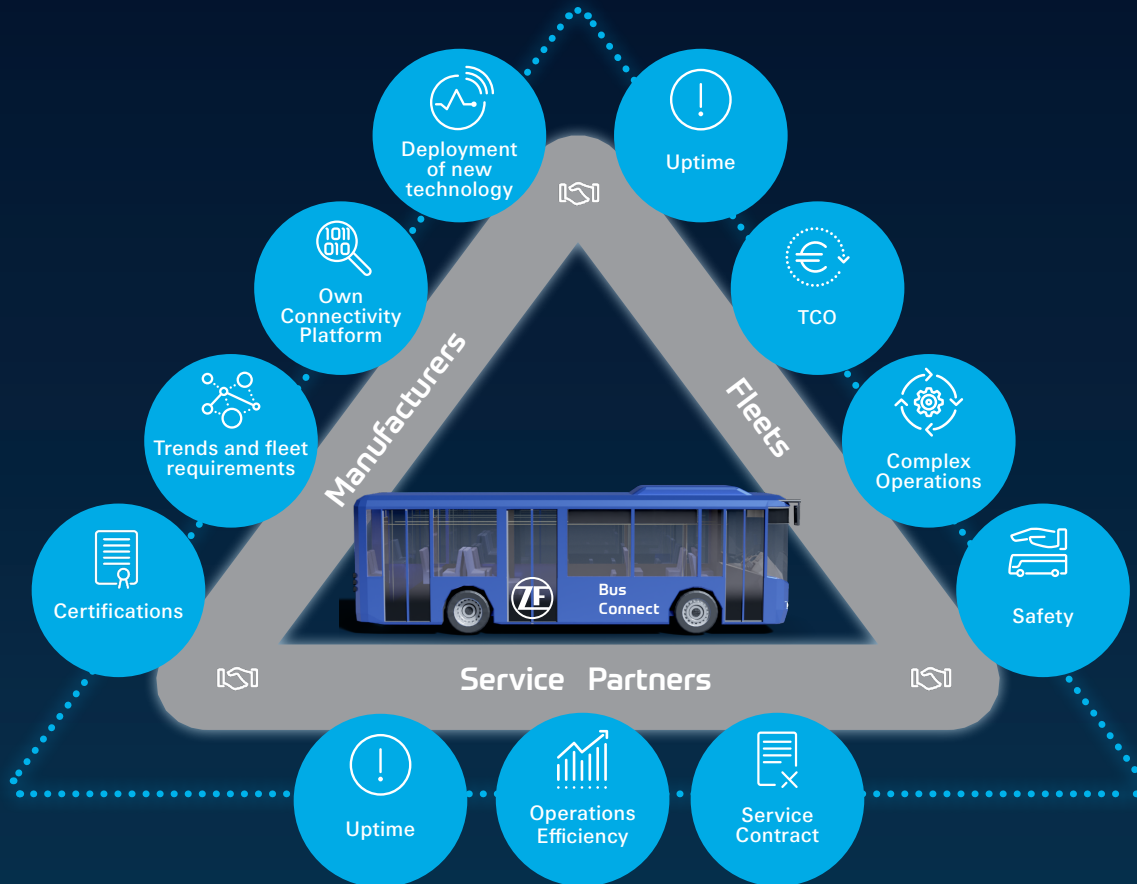
ZF Bus Connect Fleet

- € Reduce fuel consumption by 3%
- € Cut down hazardous driving events by more than 50%
- € Increase passenger comfort and safety



ZF Bus Connect Service

- € Avoid gearbox breakdown and save up to 12.000 EUR per incident
- € Increase efficiency in managing repairs



Manufacturer challenges



E-mobility /
Hydrogen
buses



Operating
or deploying
new vehicle
types?



Own
connectivity
platform



No time to
develop it?



Market
trends
and fleet
expectations



Need to
accommodate
them?



Certifications



No time to
manage it?



Condition Monitoring
& Data Logging



Reduce risks when introducing
new technologies

Turn-key solution for data
collection and analysis



Get data to support your
research and development work
and warranty claims

Ready-made solution fulfilling
OEM and fleet requirements



Be compliant with tender
requirements and create new
digital revenues

Compliant with all important
automotive and cyber security
regulations



Count on our expertise

Karsan Reference



“From our perspective, ZF Bus Connect is a great connectivity solution helping both – manufacturers and fleets. It is key for us to deploy new vehicles for safe operation, especially electric or hydrogen buses. This is where ZF Bus Connect supports us in data logging, diagnostics and condition monitoring. So we are aware if any trouble occurs or might occur.

On top of that ZF helps us to comply with local fleet tenders. ”

Kubilay Dinçer,

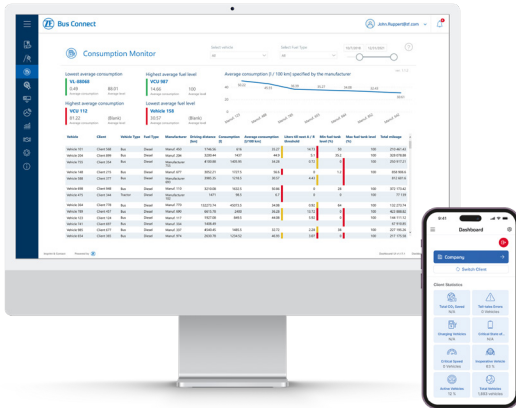
After Sales And Spare Parts Director, Karsan

Key Benefits

- Deployment of new vehicles in a secure way
- Data logging
- Condition monitoring









ZF Bus Connect Manufacturer Package

Customizable features for unique business challenges



ZF Bus Connect Manufacturer

- Advanced data logging
 - Warranty/claim assessment
 - R&D
 - Enable Predictive and proactive service and maintenance
- New revenue streams and business models
- Market standards and compliance
- Secure by design

Operations	Reduce TCO by increasing operations efficiency		Live View	✓	Real-time monitoring of fleets, vehicles and driving routes
			E-logbook	✓	Driving history and replay of routes
			Consumption Monitor	✓	Overview of fuel and energy consumption
Uptime	Increase vehicle uptime and reduce maintenance costs		Vehicle Inspector	✓	Diagnostics-CAN signals in live and more
			ZF Health Check	✓	Monitoring critical vehicle metrics and proactive maintenance
			Remote Vehicle Connection	✓	Live and remote connection to VCUs for service technicians
			Custom Analytics	✓	Customized reports implemented for a specific customer
			Data Logger	✓	Continuous & event-based data logging and storage



Fleet and Service Package available to your fleet customers and workshops upon request.

Fleet challenges



Uptime



Need to
increase it?



Total
cost of
ownership



Need to
reduce it?



Complex
operations



Need to
optimize it?



Passengers
and drivers
safety



Need to
improve it?



Live condition monitoring
and predictive maintenance
→
Remote diagnostics

Save up to 12.000 EUR per
avoided gearbox breakdown

Fuel & Energy Consumption
Monitoring
→
Eco-Driving

Reduce the number of events
generated by drivers by 58%

Reduce fuel consumption by 3%

All information in one
portal
→
High integration
capabilities

Reduce IT complexity in the fleet

Driver Feedback
→
Area-based speed
alerting

Increase travel experience and
safety of passengers and drivers

ZVB Reference



“The ZF Bus Connect system helped us to increase the comfort for our passengers. For Example, the way our drivers now drive into corners is totally different. The corner events dropped by more than 50%. On top of that we also saved fuel.”

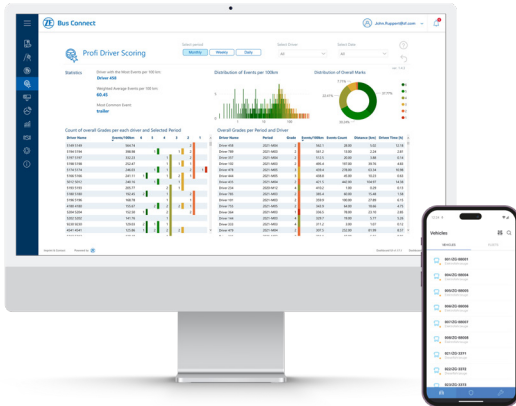
Key Benefits

- Passenger comfort increase
- Safety improvement
- Fuel consumption reduction

Walter Ulrich,
Head of Operations and Deputy Company
Manager, ZVB

ZF Bus Connect Fleet Package

Advanced connectivity solution for fleet management








ZF Bus Connect Fleet

- Real-time fleet control and management
- Advanced monitoring of driver's behavior
- Improvement of uptime
- TCO management
- Increased reliability of business operations
- ITCS integrations

Operations

Reduce TCO by increasing
operations efficiency

	Live View	✓	Real-time monitoring of fleets, vehicles and driving routes
	E-logbook	✓	Driving history and replay of routes
	Consumption Monitor	✓	Overview of fuel and energy consumption
	ProfiDriver	✓	Real-time feedback to the 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



Fleets can optionally select Service package upon request.

Workshop challenges



Uptime



Need to
increase it?



Operations
efficiency



Need to
improve it?



Service
contracts



Need to
comply
with?



Notifications and alerting

Guided repair and remote
diagnostics

Get faster diagnostic results

React properly to a vehicle
warning/breakdown

Maintenance plan
& Logbook

Automate tasks such as a mile-
age-based maintenance plan

Maintenance plan
& Logbook

Remote & continuous
vehicle monitoring

Plan critical maintenance based
on current vehicle condition

Technidro Reference



“We have chosen ZF Bus Connect to support our maintenance operations, with the target of reducing vehicle downtime through remote diagnostics. Thanks to ZF Bus Connect, we can monitor vehicle status and parameters 24/7, improving our maintenance services by receiving alerts that allow us to act proactively and reduce breakdowns and downtime.

ZF BC has allowed us to improve our maintenance operations and provide a better service to our customers.”

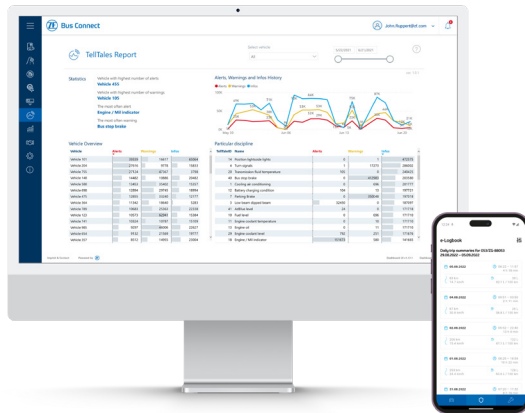
Marco Doria,
Vice President, Tecnoidro, ZF Service
Partner

Key Benefits

- Vehicle downtime reduction
- 24/7 vehicle monitoring
- Improvement of maintenance operations

ZF Bus Connect Service Package

Toolkit to improve your service and maintenance



ZF Bus Connect Service

- Vehicle health monitoring
- Comprehensive data analytics
- Configurable user interface, thresholds and alerts
- Process optimization
 - Spare parts supply
 - Resources/service partners
 - Less paperwork/digitalization

Operations

Reduce TCO
by increasing
operations
efficiency



Live View



Real-time monitoring of fleets, vehicles and driving routes



E-logbook



Driving history and replay of routes

Uptime

Increase vehicle uptime and
reduce maintenance costs



Vehicle Inspector



Diagnostics-CAN signals in live and more



ZF Health Check



Monitoring critical vehicle metrics and proactive maintenance



Remote Vehicle Connection



Live and remote connection to VCUs for service technicians



Custom Analytics



Customized reports implemented for a specific customer



Data Logger

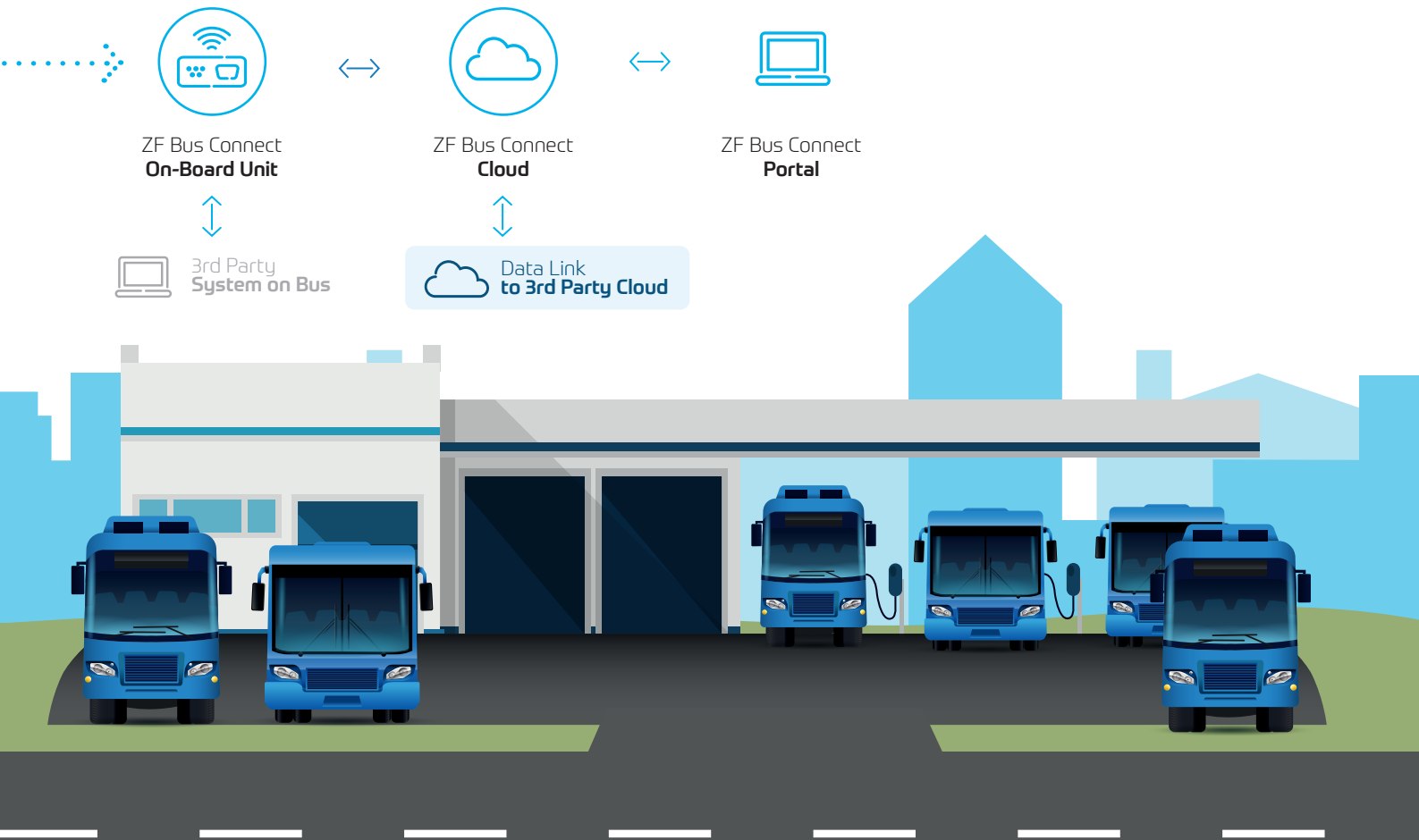


Continuous & event-based data logging and storage

Architecture for Seamless Integration

Embrace Flexibility with Data Link to
3rd Party Cloud Services





IT Ecosystem in Bus Operations



ZF Bus Connect

Fleet Management
(Portal & Onboard Unit)

Remote Maintenance
& Diagnostics



Seamless Integration & Data Exchange

Your ITCS - our Partner Solutions

Dispatching / Automated
Vehicle Location

Resource Planning
(Vehicle & Driver)

Ticketing

Passenger Information
Systems

Entertainment

CCTV

ZF Health Check for ZF Systems

ZF Health Check monitors critical vehicle metrics, enables proactive maintenance planning and minimizes breakdown risks

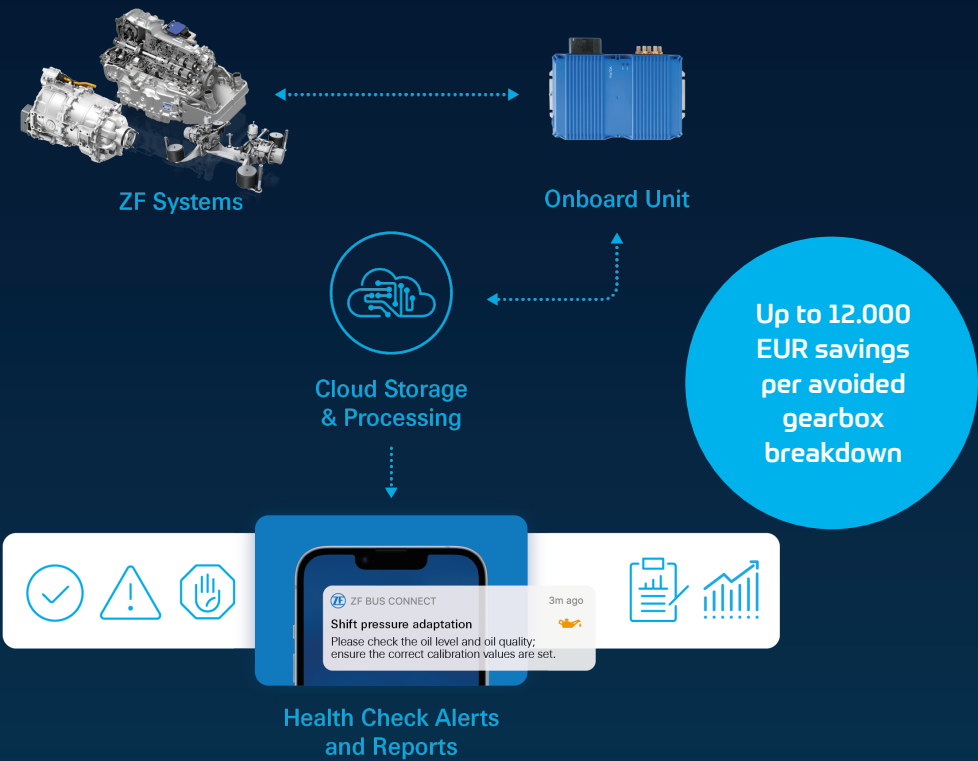
Features

- Continuous remote readout of ZF system's data
- Condition monitoring and predictive maintenance
- Alerting on ZF system's health status
- Remote support possible

Benefits

- Proactive optimization of driveline performance and fuel economy
- Predictable planning of service & spare parts
- Prompt remote diagnosis and supply of spare parts
- Increased uptime
- Cost and time savings

Services



Hardware Family

Smart hardware, simple process



Driver Feedback Device

- Device for notifying the driver when threshold values are exceeded
- Leads to >50% reduction in hazardous driving events
- The driver is warned by four LED lights and an acoustic signal
- Possibility to display the notification on a tablet
- Monitored thresholds: engine overrevving, overspeeding, idling and harsh braking/acceleration





VCU Pro

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

VCU Pro Onboard Unit

Dimensions (l × w × h)	200 mm × 122 mm × 40 mm
Operating temperature	-40 °C to +75 °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
Onboard Unit	Progressive and robust
Interfaces	4 CAN Interfaces, 4 analog inputs, 4 digital outputs
Processors	2 independent processors ensure both –secure connection to the vehicle network and universal communication capability
Compatibility	Compatible with all popular commercial vehicle brands – ideal for mixed fleets







ZF Group

ZF Friedrichshafen AG
Obere Weiden 12
97242 Schweinfurt

www.zfbusconnect.com
info.zfbusconnect@zf.com



twitter.com/zf_group

facebook.com/zfgroup.global

youtube.com/zffriedrichshafenag