

Ridesharing: test driving buses in Berlin

Bus manufacturer VDL tests instrumented city buses on the streets of Berlin



VDL buses equipped with imc measurement systems

© Photo: VDL

Test buses in Germany's capital

Berlin has more than 1300 city buses that carry passengers daily from one point to another. It is no longer a secret that you can simply board the bus lines 100 or 200 to take a tour along the major sights for little money. It's no wonder then that city buses are quite popular with tourists and locals alike. However, with such a high frequency of passengers, it is important that the vehicles are put through their paces and tested in real operating conditions. For the fleet to live up to a high standard, new vehicles must undergo extensive road testing – as with the new buses ordered by the BVG from the Dutch manufacturer VDL. When it comes to equipping their buses with test and measurement systems for road testing, VDL relies on imc. Mobile data acquisition on the VDL city buses is performed using the imc BUSDAQ-2-ET as well as imc CANSAS-INC and -SCI systems.



VDL buses in Berlin

A lightweight curtsy

Who really cares for passengers will gladly perform a curtsy: this is what the VDL Citea LLE buses do. With a small hiss, the bus will lower down to meet its passengers. Instead of just tilting to the right, the entire bus will lower evenly for the entering and exiting guests. For elderly passengers, the boarding process is now a cinch. In addition, thanks to lighter floor and roof panels, the twelve meter long bus consumes significantly less fuel as before.

Mobile data acquisition

At the moment, two Citea LLE city buses, as well as a double-decker Citea DLF are now equipped with imc measurement devices and are tested during running operations. With the acquired measurement data, VDL can continuously optimize their vehicles. The compact and robust imc BUSDAQ-2-ET measurement devices capture data from the engine, transmission, air suspension system, brake system and dashboard – all via CAN bus.

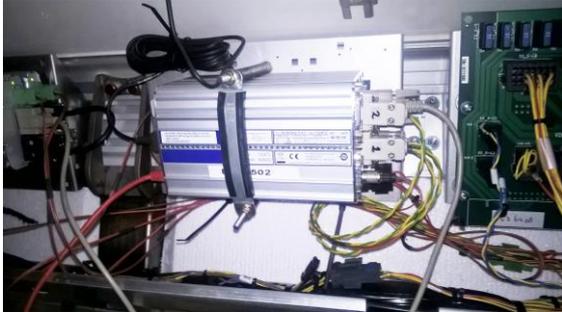


Robust and compact: imc BUSDAQ2 data logger

The imc BUSDAQ series enables time-synchronous acquisition of measurement information from vehicle buses such as CAN or LIN. These compact systems are far more than a simple logger: they offer real-time calculation and trigger options. In addition, the imc BUSDAQ supports a variety of protocols, such as SAE J1939, which describes the CAN bus communication in commercial vehicles for transmission of diagnostic data (e.g., engine speed, temperature, error codes) and control information.

Due to its signal-controlled sleep mode, the imc BUSDAQ is particularly well-suited for fleet trials, especially with a start-up time of only 200 ms. imc BUSDAQ not only allows for the connection of vehicle buses, but also bus components such as sensors, measurement amplifier modules (e.g., imc CANSAS) or con-

trol devices. Measurement data, status information, etc. can be read with the imc BUSDAQ. For road testing, having GPS capability and remote access to measurement data were an important feature.



Instrumented data logger: imc BUSDAQ

Just like all imc devices, the imc BUSDAQ is supported with the imc STUDIO software platform. This enables complete manual and automatic adjustment of the measurement parameters, real-time functions, triggers and storage modes. Curve window displays and documentation created in the Report Generator are an integral part of the software.

In addition, modules for capturing frequency, rotation, position and angle are in operation:

imc CANSAS-INC and -SCI modules for isolated recording of voltage, current and temperature. They detect signals such as generator current and voltage, pulse width modulation, air compressor pressure and the status of the air conditioner.



imc CANSAS-INC module



imc CANSAS module in operation

Additional information:

imc Meßsysteme GmbH

Voltastr. 5
D-13355 Berlin

Telefon: +49 (0)30-46 7090-0
Fax: +49 (0)30-46 31 576
E-Mail: hotline@imc-berlin.de
Internet: www.imc-berlin.com

For over 25 years, imc Meßsysteme GmbH has been developing, manufacturing and selling hardware and software solutions worldwide in the field of physical measurement technology. Whether in a vehicle, on a test bench or monitoring plants and machinery – data acquisition with imc systems is considered productive, user-friendly and profitable. So whether needed in research, development, testing or commissioning, imc offers complete turn-key solutions, as well as standardized measurement devices and software products.

imc measurement systems work in mechanical and mechatronic applications offering up to 100 kHz per channel with most popular sensors for measuring physical quantities, such as pressure, force, speed, vibration, noise, temperature, voltage or current. The spectrum of imc measurement products and services ranges from simple data recording via integrated real-time calculations, to the integration of models and complete automation of test benches.

Founded in 1988 and headquartered in Berlin, imc Meßsysteme GmbH employs around 160 employees who are continuously working hard to further develop the product portfolio. Internationally, imc products are distributed and sold through our 25 partner companies.

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imc Test & Measurement B.V. (imc Benelux)

Vaart 19-21
NL-4206 CC Gorinchem.

Telefon: +31 (0)85 876 93 92
Fax2Mail: +31 (0)85 301 02 79
E-Mail: info@imc-benelux.com
Internet: www.imc-benelux.nl

By providing solutions for the acquisition of physical quantities, imc Test & Measurement B.V. enables engineers in the Benelux region to be productive in testing.

The portfolio of the Benelux subsidiary of imc Meßsysteme GmbH comprises distribution of measurement hardware and software – as well as total solutions ranging from simple mobile data acquisition applications to turnkey test bench solutions, backed-up by service and training.

The new imc location in Gorinchem, NL, not only provides ample space for the growing company, but also has a training facility. Customers from Belgium, The Netherlands and Luxemburg are directly supported by the Benelux office.