

FEA Service Unit

For RF Data Transmission Simulation of LSS Control



- Reception, evaluation and analysis of LSS telegrams
- Transmission of LSS request telegrams via radio
- Recording of received and transmitted telegrams in the history memory
- Time characteristics analysis of received telegrams
- Network, vehicle and battery operation
- Transmission power configurable in 5 steps
- PC service program FEAWin with project-specific user interface

Description

Using the service device specifically developed for LSS control testing the complete signal path can be tested using a radio link. Furthermore, a vehicle sending request telegrams can be simulated using the service device and received telegrams can be evaluated and analyzed.

It is structured as 19" table unit and is designed for laboratory as well as mobile applications together with a notebook. The integrated rechargeable batteries are designed for an operating duration of up to 8 hours.

Overview

The service device is used to transmit and receive LSS telegrams (R09.xx-telegrams).

The service unit can simulate on-board computers as well as FEA devices on the LSS.

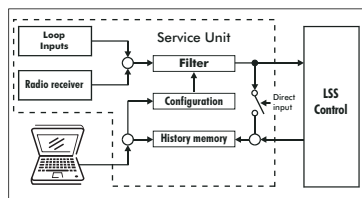
Functionality

The LSS control system usually consists of three system components:

1. **Requesting vehicle**
transmits request telegram to the LSS.
2. **Reception and evaluation unit**
receives a telegram on the LSS, filters it and provides it to the LSS.
3. **Light signal system**
changes the signal phases to make sure that the requesting vehicle

reaches the system in the green phase.

The interaction between both components can be simply tested in the lab or at an intersection. For this purpose the FEA contains all required test functions.



Data flow in the service device

The test of the first two system components is often more difficult, as neither in the lab nor when working at an intersection a vehicle is always available transmitting LSS request telegrams. In these cases the service device can be used to simulate a vehicle. In the reversed case, if e.g. the vehicle radios system should be tested, the service device can be used to record transmitted telegrams.

Thus, the service device saves time and effort during development, installation and routine checks, as the sub-components of the system can be tested independently. Furthermore, it is almost indispensable for certain specific problem solutions. Just imagine that you would like to determine the optimum location for your reception antenna, in order to receive all requested telegrams with good signal quality. For this purpose you must transmit request telegrams on all access routes and check the signal quality at all possible antenna locations.

Using the service device you can access the locations significantly easier than using a bus or train and can transmit the requests.



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FEAWin

The PC service program FEAWin is used as comprehensive, Windows-based tool to manage all functions of the FEA service device.

The well-arranged menu-guided user interface enables intuitive and easy operation. Using the menu, the program can be project-specifically configured to ensure that all table and form fields are labeled according to the conventions defined in the project. When receiving or transmitting a telegram, the telegram content is interpreted accordingly.

The program enables graphical management of all FEAs within a catchment area, including their parameter sets, assemblies, configurations etc.



Reception modes

For the receipt of LSS telegrams 3 modes are available:

1. Recording of received telegrams and storage in the history memory. The stored telegrams can later be retrieved using the PC/notebook.
2. Received telegrams are directly displayed on the screen in tabular form.
3. Received telegrams are displayed bit by bit on the screen with time information for individual bits.

Recorded telegrams can be printed.

Transmission modes

Telegrams are transmitted using a transmission table. The transmission table offers three possible modes:

1. Simulation mode

The PC simulates a vehicle and transmits telegrams via the maintenance interface on the FEA.

2. Analog radio

The FEA is instructed to physically

transmit telegrams via the analog radio transmitter integrated into the service device.

3. Digital radio

The FEA is instructed to transmit telegrams via an attachable digital radio transmitter (Tetra/Tetrapol).

In all three modes it is possible to individually, randomly or cyclically transmit telegrams entered in a transmission table.

In addition it is also possible to configure double transmission of all telegrams in the transmission table.

Technical data

Dimensions: B430 x H160 x T345 mm

Weight: 11 kg

Rated voltage: 230 V AC / 12 V DC

Power consumption: 160 VA

Operating temperature: -20 °C ... +70 °C

Storage temperature: -25 °C ... +85 °C

MTBF: 90.000 hours

Interfaces:

- RS232 (19,2 kbit/s)
- External radio receiver
- External 12 V supply

PC operating system: Program runs under Win9x, WinME, Win NT4.0, WinXP und Win200x



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