TRAINER FOR THE STUDY OF CAN BUS COMMUNICATION PROTOCOL

DL UH-CAN BUS

Who is it for?

- Automotive system Engineering
- Autotronics Technician
- Industrial Tech. in Automotive field
- Automotive maintenance Tech.

PURPOSE OF THE TRAINER

This trainer **DL UH-CAN BUS**, designed specifically for educational purposes, gives students access to one of the industry's most trusted data communication protocols, turning theory into real-world skills. It enables them to gain hands-on experience with one of the most widely used data communication protocols in the automotive industry, fostering experiential learning.

It is designed to demonstrate the structure and operation of the **CAN** bus system and data packets in a practical way. Students can observe the **CAN** bus under realistic conditions, understand the message construction logic (identifier, data field, bit stuffing, request, acknowledgement, data rate, among others), and discover how sensitive the system is to several types of faults.

Integrated lessons walk learners through each parameter step by step, giving them the ability to adjust and experiment in real time. Every change can be displayed on an automotive oscilloscope and further analysed using the built-in protocol decoder.

The simulator is not only a direct learning tool for students, but it also empowers instructors by serving as an effective resource during theoretical lessons. It is an invaluable aid for teaching subjects such as automotive communication networks and vehicle diagnostics.

In definitive, it enables students and instructors to:

- Understand **CAN** bus fundamentals,
- Perform Real-Time experiments,
- Simulate Real-World conditions,
- Explore hardware interactions,
- Support theoretical and practical teaching.

TECHNICAL SPECIFICATIONS

The trainer has the following technical specifications:

- Key circuits and vehicle components are highlighted on a vibrant, full-colour printed panel for clear visualization and easy understanding.
- Experience real-world automotive networking with the original CAN protocol.
- Main LCD display dedicated to monitor the transmitting node on the CAN bus line.
- Two auxiliary LCD displays representing additional transmitting and receiving nodes on the CAN bus line.
- Banana plug test points **CAN H** and **CAN L** positioned along the bus line for easy signal measurement and diagnostics.
- Physical connection via twisted pair cable for authentic CAN bus communication.
- Flexible to physically disconnect termination resistors at both ends of the CAN bus.
- Supports live oscilloscope monitoring at multiple bus line measurement points for accurate diagnostics, such as:
    - Physical layer analysis,
    - Communication decoding,
    - Termination resistor analysis.
- Step-by-step lessons enabling precise adjustment of CAN parameters and message components for a deeper understanding such as:
    - Activity,
    - Message refresh rate,
    - Identifier (IDE),
    - Arbitration,
    - Data packets (DATA),
    - Remote request (RTR),
    - Acknowledgement (ACK),
    - Bus communication speed,
    - Bus load.
- Exam mode by identifying and decoding messages in real-time CAN bus communication.
- Seven configurable fault scenarios, such as missing single or both terminating resistors, CAN-H/CAN-L interruption (both ends), CAN-H and CAN-L short (both ends), CAN-H/CAN-L

short to GND (both ends) and a triggering communication fault (ACK missing), allowing instructors to create many fault finding scenarios for hands-on troubleshooting practice.

GENERAL SPECIFICATIONS

- Safe operation with measurable voltage always < 40 V.
- Power supply: single-phase from the mains.
- Equipped with a fuse.
- Dimensions (LxDxH): approx. 760×320×440 mm.
- Weight: approx. 15 kg.

Supplied with detailed practical manual.