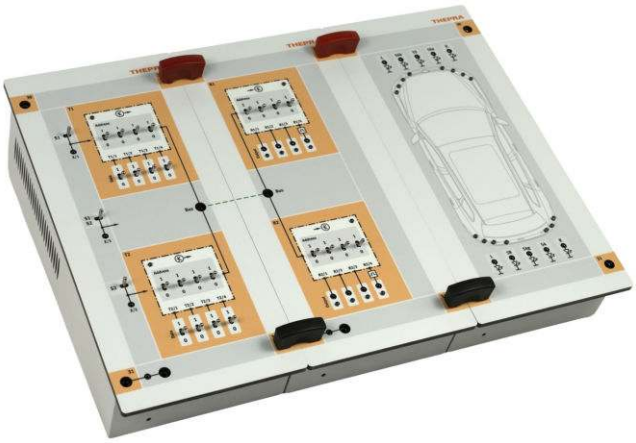
ITEM NO. 12 031 150 · TP-LAB

TP-Lab Serial Communication 4.0

Transmitter that you can see: **Three separate units, one real bus**. Transmitter → Cable → Receiver; different messages trigger different actions. From the first bit to the oscilloscope signal in **12 Tasks**.



AT A GLANCE

FORM FACTOR
3 separate units in the console housing

VOLTAGE
10 to 15 V DC

LEARNING UNITS
12 Tasks · approx. 5.5 hours of class time

HANDBOOK
Theory · Tasks · Solutions

E-LEARNING
Optional

LEVEL



Entry 80 % **In-depth** 20 %

Why This Trainer?

01
Actual transmission over the bus

The transmitter, receiver, and vehicle LED are three separate units—the message is transmitted via a true bus cable.

02
Visualizing Serial Communication

Connected to the oscilloscope via BNC: Communication visible bit by bit. A single line switches different loads depending on the address.

03
Can be networked in the TP-Lab system

The input jacks connect to the TP-Lab Trainer 4.0 sensors: A sensor signal triggers the bus message.

04
Classroom-ready & Secure

12 Tasks with complete solutions, modular theory, and wiring diagrams. 4-mm and 2-mm safety sockets; automotive-grade low voltage: 10–15 V DC.

Technical data

DIMENSIONS (W × D × H) **3 Units · 133 × 297 × 110 mm each**	WEIGHT **3.5 kg (all 3 units)**	POWER SUPPLY **10 to 15 V DC**
CURRENT DRAW **3 A**	MEASURING SOCKETS **16 × 4 mm · 23 × 2 mm (Safety)**	EMISSION SOUND PRESSURE **< 70 dB(A)**

CE UKCA RoHS EN

12 Tasks — Structured Learning Path

NO.	TASK	DIFFICULTY	TIME
1	Binary Numbers (with information about the task)	★☆☆☆	30 min
2	Basic Functions	★☆☆☆	20 min
3	Send to a receiver	★★☆☆	25 min
4	Send to Two Receivers	★★☆☆	25 min
5	Hexadecimal values	★★☆☆	20 min
6	Transmitting Hexadecimal Values	★★☆☆	25 min
7	Fog Light Control	★★☆☆	25 min
8	Flashing Light Control	★★☆☆	25 min
9	Collision	★★★☆	30 min
10	Control of low beams, taillights, high beams, and brake lights	★★★☆	35 min
11	Driving Situations	★★★☆	35 min
12	Oscilloscope Measurement	★★★☆	35 min

Components and Scope of Delivery

ONBOARD COMPONENTS

Console housing, table, or DIN-A4 mounting frame	
Transmitter units, 4-bit address	**2 ×**
Receiver Units, 4-Bit Address	**2 ×**
8 LEDs and 8 outputs each, 1 flashing relay	
4 Mm connectors	**7 ×**
Connections: 2 mm	**18 ×**
Switches: Send, 8 Data, 16 Address	**3 ×**
Input jacks, only with 12 020 180	**3 ×**
LEDs in the printed vehicle	**15 ×**

SCOPE OF DELIVERY

- TP-Lab Serial Communication 4.0 (12 031 150)
- Red and black jumper Plugs (4 mm)
- Red laboratory cord, 2 mm, 25 cm
- Green laboratory cord, 4 mm, 30 cm
- Red and black laboratory wires, 4 mm, 50 cm
- BNC-to-4-mm Adapter
- Operating Manual, EU Declaration of Conformity

RECOMMENDED ACCESSORIES

Power Supply Unit TS15	**12 050 015**

Relation to the Curriculum

UK IMI · ST0033	**US** ASE Education Foundation	**CA** Red Seal RSOS	**AU** AUR30620 Cert III

Examples — in total the tasks are mapped to more than 90 curricula.