ITEM NO. 12 020 170 - TP-LAB · GENERATION 4.0

TP-Lab Electric Trainer 4.0

Build circuits yourself—and it's okay to make faults along the way. Generation 4.0 with self-resetting fuse: Fix wiring errors during operation—the fuse automatically turns green again. From the first circuit to the turn signal system — **38 Tasks · over 10 hours**.



AT A GLANCE

FORM FACTOR
Console Housing · Also for DIN-A4 Mounting Frames

VOLTAGE
10–15 V DC · 1–3 A · external power supply

LEARNING UNITS
38 Tasks · over 10 hours of class time

HANDBOOK
Approx. 200 pages · Theory · Tasks · Solutions

E-LEARNING
Optional

LEVEL

Entry 3 % **In-depth** 97 %

Why This Trainer?

01
Actual wiring—not just clicking

Students build each circuit themselves—using real test leads and experiencing real voltage drops. From simple circuits to diodes, relays, flashing lights, and LEDs.

02
Classroom-ready from the very first class

38 Task sheets with solutions for the trainer, theory modules, wiring diagrams, and measurement tables—over 10 hours of instruction, ready to use right away.

03
Fits the curriculum—not the other way around

Each task aligns with the objectives of national curricula. The overview below lists the curricula for your market.

04
Faults Are Allowed — The Backup System Thinks for Itself

Self-resetting fuse: Short circuits or wiring errors will not cause damage. Safety technology: 2 mm, 10–15 V DC, EN 61010-1.

Technical data

DIMENSIONS (W × D × H) **266 × 297 × 110 mm**	WEIGHT **approx. 2.1 kg**	POWER SUPPLY **10–15 V DC**
CURRENT DRAW **1–3 A**	MEASURING SOCKETS **64 × 2 mm + 4 × 4 mm**	EMISSION SOUND PRESSURE **< 70 dB(A)**

CE UKCA RoHS EN

38 Tasks — Structured Learning Path

NO.	TASK	DIFFICULTY	TIME
1.1–1.3	Simple circuit, negative-side connection	★☆☆☆	10 min
2.1–2.2	Measuring Voltage and Voltage Drop	★★☆☆	20 min
3.1–3.3	Current Measurements: Direct and Indirect	★★★☆	55 min
4.1–4.2	Measuring Cold and Hot Resistance	★★★☆	25 min
5.1–5.4	Series Connection: Voltage, Current, Resistance	★★★☆	60 min
6.1–6.4	Parallel Circuit: Voltage, Current, Resistance	★★★☆	60 min
7.1–7.4	Mixed Circuit: Voltage, Current, Resistance	★★★☆	80 min
8.1–8.3	Diodes as Switching Elements and for Decoupling	★★★☆	55 min
9.1–9.8	Relays, turn signals, hazard warning system	★★★☆	135 min
10.1–10.2	LED Conversion for Turn Signals	★★★☆	35 min
11.1–11.3	Indicator light, glow effect, reverse diodes	★★★☆	55 min

Components and Scope of Delivery

ONBOARD COMPONENTS

Console housing, table, or DIN-A4 mounting frame	
various switches	4 ×
Fuse	1 ×
Precision shunts	2 ×
Incandescent Bulbs	4 ×
LED Bulbs	2 ×
Resistors	4 ×
Diodes	2 ×
Relay	1 ×
Conventional turn signal relay	1 ×
Electronic turn signal relay	1 ×
Connectors for Cabling and Measurements	64 ×
Power Supply Connectors	4 ×

SCOPE OF DELIVERY

- TP-Lab Electrical Trainer 4.0 (12 020 170)
- Red and black jumper Plugs (4 mm)
- 2-Mm laboratory test tubes, red: 10, 15, 25 cm
- 2-Mm laboratory test tubes, blue: 10, 15, 25 cm
- Test leads, 4 mm to 2 mm, 100 cm, red and black
- Operating Manual, EU Declaration of Conformity

RECOMMENDED ACCESSORIES

Power Supply Unit TS15	**12 050 015**
2-Mm Safety Test Lead Set	**12 020 018**

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.