

H2 Training System

I. Description of the product

The training system is an integrated learning platform designed to facilitate hands-on learning in the field of hydrogen technology and renewable energy systems. It comprises several key components: an electrolyser to convert electrical energy into hydrogen, a fuel cell to convert stored hydrogen back into electricity and a hydrogen tank for storage. In addition, the system has a battery for additional power storage, a control system to manage operation and a human-machine interface (HMI) for user interaction and real-time monitoring. This comprehensive setup not only demonstrates the integration and operation of hydrogen technologies, but also highlights key safety features for handling hydrogen and high-voltage components.

II. Application

The hydrogen technology training system is suitable for practical learning in various academic and professional fields such as:

- Research
- Electrical Engineering
- Energy Engineering
- Process Engineering
- Mechanical Engineering
- Automotive Engineering

III. Design



The information provided here is for general informational purposes only.

IV. Specifications

a) General information:

External dimensions of the cabinet: 728 mm x 1,200 mm x 1,850 mm (B x D x W)

Weight: 400 kg – 500 kg

Operating ambient temperature range: 5°C – 35°C

Hydrogen quality: H₂O < 500 ppm

Outlet pressure: 20 bar

Water consumption: 0.4 l/h – 1.2 l/h Tap water

b) Electrolyser

- Type: 1.3 kW Hiat Stack
- H₂ production: 2.968 Nml/min (0,18 Nm³/h)
- O₂ production: 1.484 Nml/min (0,09 Nm³/h)

c) Fuel cell:

- Typ: Baltic Fuel Cells FC Stack LC 30.30
- Output power (nominal): 600 W
- Voltage output: 24 V/48 V
- Output power (range): 300-600 W
- Hydrogen consumption at nominal output: 11.77 Nl/min (0.708 Nm³/h)

d) Battery:

- Chemistry: Lithium Iron Phosphate (LiFePO₄)
- Voltage: 48 V
- Capacity: 50 Ah

e) Hydrogen storage:

- 10 L gas bottle
- External storage tank can be connected to the system limited to the system pressure

f) Anschlüsse

- Water connections: at rear, near the bottom
- Oxygen and hydrogen connections: top side

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