

## Sustainable, smart, safe

Hydrogen trailer control with valve terminal solution

**Hydrogen makes sustainable energy mobile. With the intelligent trailer control system HY.Runner from GP Joule, transporting hydrogen is more efficient, safer, and more environmentally friendly. The Festo valve terminal VTUG and the solenoid valve VOFC provide a space-saving design on the trailer chassis, as well as additional safety.**

From generating to using renewable energy, GP Joule as an integrated energy supplier is active along the entire energy value chain. The newly developed trailer control system HY.Runner won the German Renewables Award as “Hydrogen Innovation of the Year” in November 2024. It is the second project of GP Joule to receive this prestigious award. HY.Runner is already being used in HY.CITY.Bremerhaven, a model region for the production and use of hydrogen.

### Smart controlled sectors

The intelligent trailer control system ensures that the hydrogen produced in electrolyzers is delivered to hydrogen filling stations or industrial customers as efficiently as possible. The advantages of this innovative solution are the optimum utilization of the hydrogen quantities in the trailer and the networked communication between the electrolyzers, filling stations, and mobile hydrogen reservoirs. The central component of the innovative solution is the process control system running directly via the trailer as the hydrogen is being filled and removed. The hydrogen storage sectors are smartly controlled so that as much hydrogen as possible can flow to the filling stations as quickly as possible.

The hydrogen supply can be drawn off remotely at any time, resulting in greater flexibility and high precision in hydrogen distribution. In addition, a standardized interface makes the trailer independent of the stationary remote station. By monitoring all the operating conditions, safety is increased and integration into the safety concepts of filling and extraction points is simplified.

### Pneumatically functional and safe

The intelligent control system is housed in the lower frame area of the trailer chassis. This means that a pneumatic solution that was both sturdy and space-saving was required. The choice was made for the valve terminal VTUG from Festo. With its high pneumatic functionality and electrical modularity, it can be quickly integrated into various automation solutions and can be easily configured, too. Thanks to its compact dimensions, it is perfect for use in the HY.Runner. To meet the high SIL safety standards, the valve terminal VTUG is actuated using

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the Festo solenoid valve VOFC. The indirectly controlled pilot valve is designed for particularly demanding operating conditions and is suitable for safety-related systems up to SIL3.

### **Green Hydrogen Bremerhaven ecosystem**

HY.Runner is showcasing its strengths for the first time in the regional energy transition project HY.CITY.Bremerhaven, which was initiated by GP Joule Hydrogen GmbH and Green Fuels GmbH. The project uses renewable energy from local wind turbines to operate a 2-megawatt electrolyzer. The hydrogen extracted is stored directly in a trailer with an intelligent control system and delivered to a publicly accessible H2 filling station. With the electrolysis capacity, up to 34 buses and more than 190 cars can be refueled every day.

**Festo is exhibitor at Hydrogen Technology World Expo in Hamburg/Germany:**

**Stand 6J40**

**21-23 October 2025**

### **Press Images**



#### **KP Joule**

Electricity from wind is converted to hydrogen in electrolyzers and, smartly controlled by the Festo valve terminal VTUG and solenoid valve VOFC, is fed directly into the mobile hydrogen trailer.



#### **Hydrogen production**

Green energy from wind farm to hydrogen filling station: Hydrogen production site of the eFarm project in North Frisia, Germany, initiated by GP Joule.

### **About Festo**

Festo is a global player and an independent family-owned company with headquarters in Esslingen am Neckar, Germany. Festo has set standards in industrial automation technology and technical education ever since its establishment, thereby making a contribution to sustainable development of the environment, the economy and society. The company supplies pneumatic and electrical automation technology to 300,000 customers of factory and process

automation in over 35 industries. Digitalization, AI and the LifeTech sector with medical technology and laboratory automation are becoming increasingly important. The products and services are available in 176 countries. With about 20,600 employees in over 250 branch offices in around 60 countries worldwide, Festo achieved a turnover of around €3.45 billion in 2024. More than 8% of this turnover is invested in research and development. In this learning company, 1.5 % of turnover is invested in basic and further training. Festo Didactic SE is a leading provider of technical education and training and offers its customers worldwide comprehensive digital and physical learning solutions in the industrial environment.