

PREVENTING OXYGEN SHORTAGES IN INDIAN HOSPITALS

HIGHLIGHTS



- ✓ [Altorum Leren](#) is an Indian start-up specializing in industrial automation IIoT. It develops end-to-end IoT solution platforms for a variety of industries, and leverages cutting-edge technologies to improve productivity with its Alfinity cloud platform.
- ✓ To prevent another oxygen shortage in hospitals, Altorum Leren helped execute the Indian government's vision of centralizing the monitoring and management of oxygen availability throughout India. This meant establishing remote access capabilities in oxygen production plants, which meant a connectivity device was needed.
- ✓ The device chosen was our TRB145 industrial gateway, primarily due to its support of the RS485 serial interface and the ability to install custom software to make it support Ethernet/IP, ProfiNet, ICE, OPCUA, and Profibus.

THE CHALLENGE – THE TIME INDIA RAN OUT OF OXYGEN

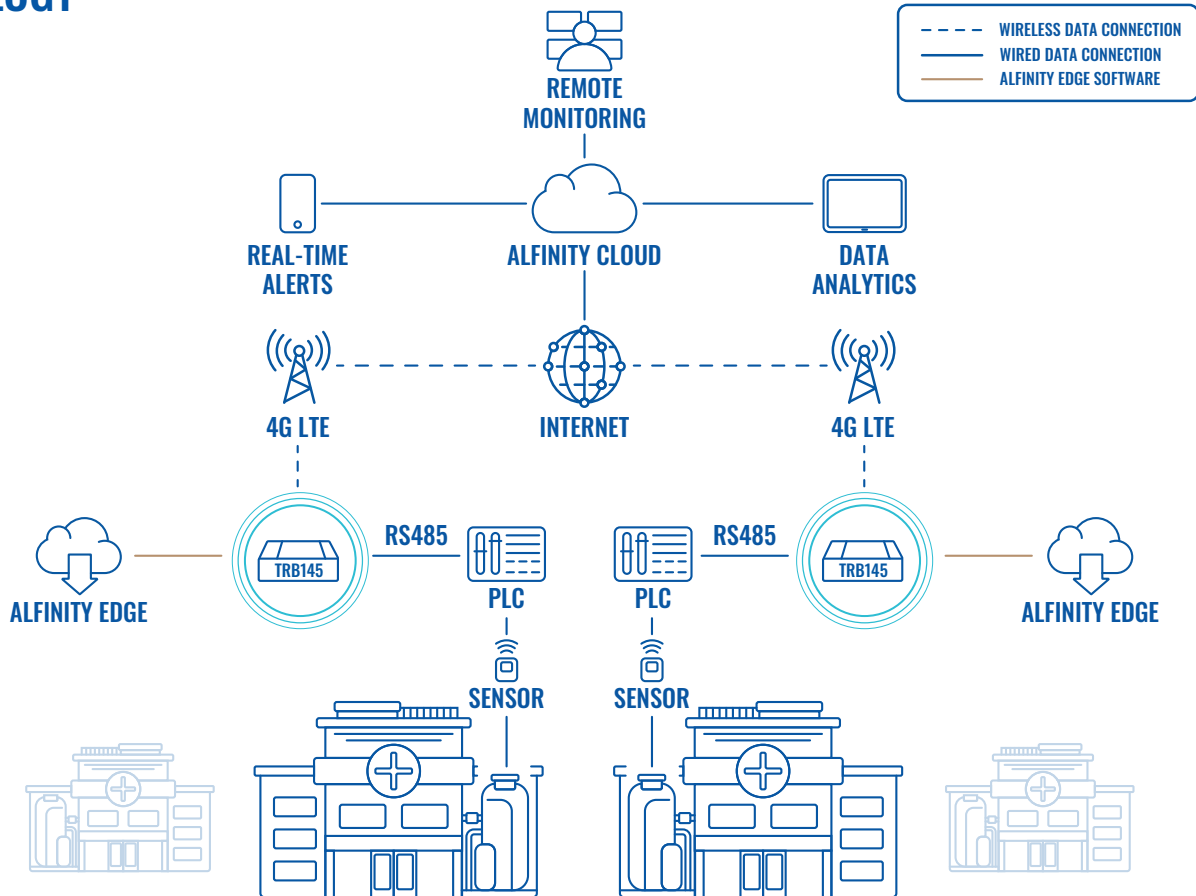
We cannot live without oxygen. While this isn't usually a problem most of us have to deal with, this wasn't the case for [hospitals in India during the COVID-19 pandemic](#). With over 18 million confirmed cases, demand for medical oxygen soared and supply was unable to meet it. This led to an unfortunately huge loss of lives.

Why did that happen?

Part of it is due to the oxygen production infrastructure in India. Only a relatively small number of hospitals had the capability to produce their own oxygen. All other hospitals – spread across the 3.287 million km² that make up the country – depended on deliveries from private companies. But the amount of oxygen is only part of the picture; even if every single hospital in India could produce its own oxygen, without a system in place to continuously monitor and manage its availability, the risk of imprecise oxygen management leading to another shortage would remain high.

The Indian government deemed this unacceptable. It started looking for a solution that would centralize the monitoring and management of oxygen availability throughout the country. Altorum Leren was tasked with helping to execute this vision, as such a solution lives and dies on IoT-powered remote management. Fortunately, this is exactly what we at Teltonika Networks specialize in.

TOPOLOGY



THE SOLUTION – A CONNECTED BREATH OF FRESH AIR

Altorum Leren already had Alfinity – its own cloud platform for remote management, which was used to generate reports, dashboards, and preventative maintenance alerts. What it needed was a reliable connectivity device that would act as a network communication bridge between Alfinity and the PLCs used in oxygen production plants.

The device chosen was our TRB145 industrial gateway, primarily due to its support of the RS485 serial interface. Different PLCs in oxygen production plants necessitate different interfaces, including RS485. However, this gateway also allowed Altorum Leren to install its Alfinity Edge OS firmware with a custom code onto it, further enhancing its compatibility by making it support the Ethernet/IP, ProfiNet, ICE, OPCUA, and Profibus interfaces.

Over 1000 Indian hospitals were equipped with oxygen-production infrastructure, and each of them was connected to Alfinity with the help of TRB145 devices. This allowed the end user – the Indian government, to precisely plan its oxygen supply and management.

In addition to providing reliable network connectivity, this fleet of gateways also offers a number of important software features, such as SMS control, Firewall, Open VPN, IPsec, and FOTA support. Its compact size, rugged aluminum housing, and 9-30V power supply voltage range made it incredibly easy to install and work with – a critical requirement for this kind of industrial application where multiple different PLCs are involved.

When all is said and done, this solution is paramount in maintaining a steady supply of oxygen, determining parameters pertaining to oxygen surplus and shortage, and ultimately – saving lives.

