

CELLULAR GATEWAY FOR SMART CONSTRUCTION CRANES

HIGHLIGHTS

- ✔ [Enbiente](#) is a Portuguese provider of photovoltaic and industrial automation solutions, helping its clients maximise the value of their solar energy and construction projects.
- ✔ For its rental construction crane automatic data relay solution, Enbiente needed a connectivity device that supports Modbus TCP and can be reliably deployed wherever the cranes are rented for construction.
- ✔ Our TRB140 is a cost-efficient and space-efficient cellular gateway that provides reliable and seamless connectivity and guaranteed durability – making it a perfect fit for this solution.

THE CHALLENGE – SMART RELAYS, SMARTER CRANES

Construction is, quite literally, one of the building blocks of civilisation. The need for housing, commercial, and recreational spaces never runs out, making this sector a reliable market staple.

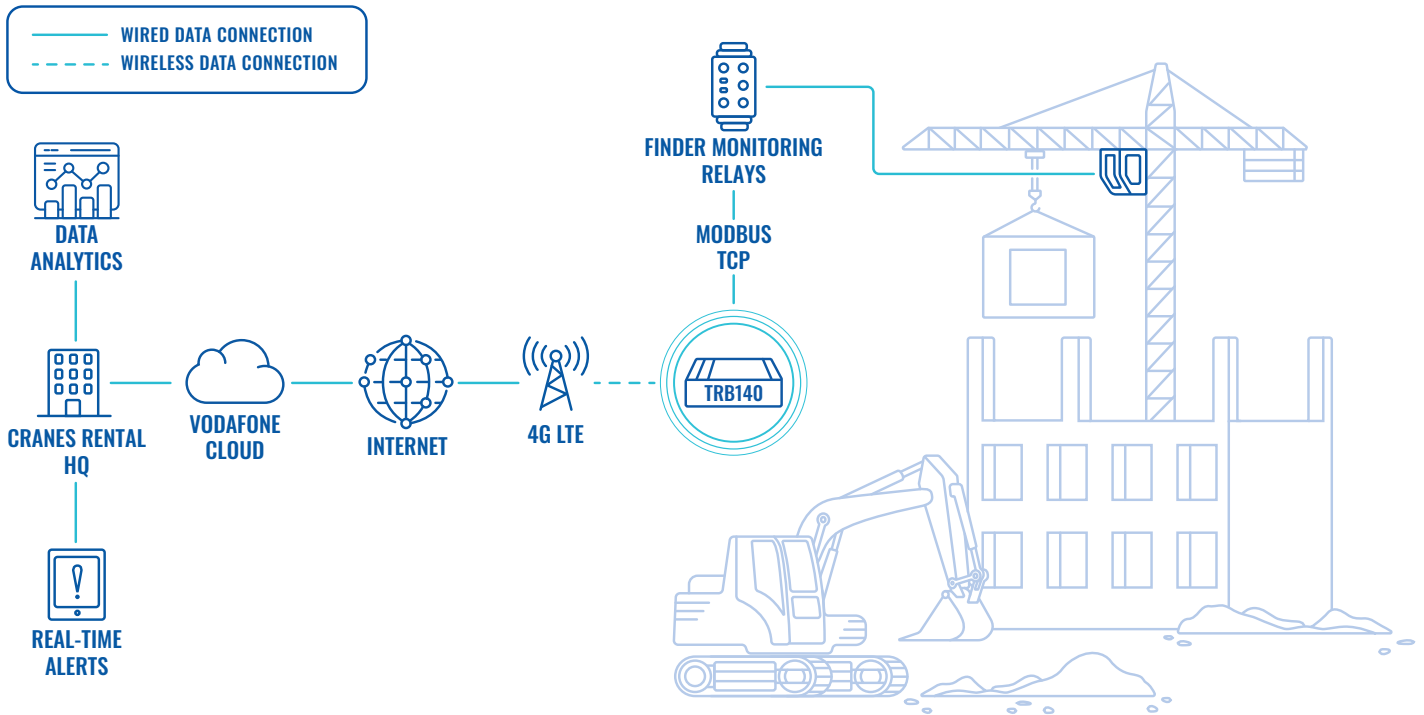
These days, smart construction implements IoT and other innovative technologies to enhance construction on all vectors using industrial automation solutions, from project efficiency to employee safety. The global smart construction market [is expected to grow](#) from \$10.2 billion in 2020 to \$35.05 billion in 2029, at a CAGR of 14.7%.

A good example of such a solution is the construction crane automatic data relay solution. A Portuguese construction crane rental company needed its cranes to send status, alarms, and usage metrics in order to bill its clients accordingly without risking human errors. It came to our partner, Enbiente, which began developing the solution.

Of course, any data relay solution requires a connectivity device to make the relay take place – otherwise the solution fails before it even starts. The question was, which device was the right one for the job?

Enbiente had several factors to consider. As the solution would be implemented in a rental construction product, the connectivity device must be able to withstand a wide range of adverse environmental conditions typically found in construction sites. To ensure accurate billing, the connection itself must remain seamless at all times and make no compromises in terms of security.

TOPOLOGY



THE SOLUTION – CELLULAR GATEWAY FOR INDUSTRIAL AUTOMATION

Enbiente chose the TRB140 cellular gateway by Teltonika Networks to empower its industrial IoT solution with connectivity and enable it to perform without fault.

This cellular gateway is connected via Ethernet to a number of Finder monitoring relays, timers to monitor working time, and other measurement devices installed on the construction crane. The TRB140 then sends the gathered data to a Vodafone cloud server via Modbus TCP, where data from the entire fleet of rental cranes can be processed and analysed for accurate billing and preventive maintenance.

The TRB140 facilitates this communication with LTE Cat 4 speeds of up to 150 Mbps, enabled by GSM connectivity. The connection is secured by a number of key security features and an extensive list of supported VPNs. This meets the solution’s needs perfectly, making this industrial gateway a cost-efficient connectivity choice.

But this 4G LTE gateway isn’t only cost-efficient, it’s also space-efficient. Measuring 74.5 x 25 x 64.4 mm and weighing only 134 g, the TRB140 is extra compact and lightweight and easily slots into the solution’s tight set-up.

Modbus TCP support is paramount for this solution, but this cellular gateway supports additional industrial protocols, such as MQTT and DNP3, ensuring the device is versatile for potential future upgrades to the solution’s scope.

Last but not least, this cellular gateway is housed in a sturdy aluminium casing capable of withstanding vibrations and temperatures ranging from -40 °C to 75 °C. As Enbiente’s solution is sure to expand beyond the shores of Portugal, the TRB140 is ready to be deployed wherever construction cranes are needed.

