

OPTIMIZED USE OF RESOURCES IN DAIKIN HVAC SYSTEMS WITH 4G CONNECTIVITY

SUMMARY

Any residential, commercial, or industrial building requires a Heating Ventilation and Air Conditioning (HVAC) system. Consumers usually do not notice the significance of HVAC in everyday life as long as it functions properly. However, whenever there is any failure in any part of the HVAC system, the effects are felt immediately. Since the HVAC system not only provides heating and ventilation but also ensures appropriate humidity levels, temperature control, removes dust, odours, bacteria, and increases the overall quality of air, seamless functioning of these systems are especially important in industrial use.

PARTNER -

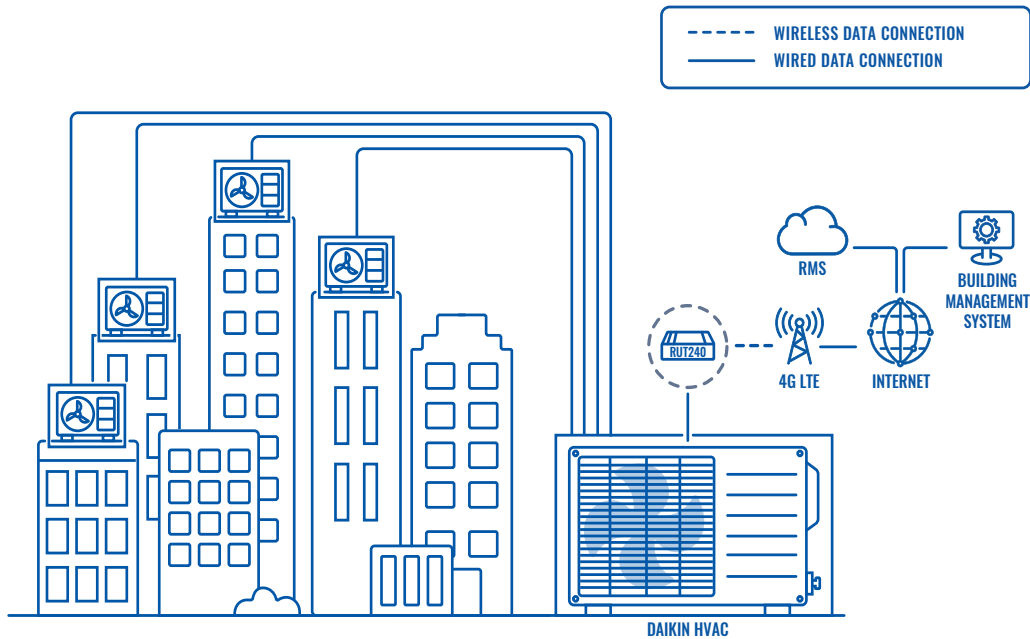
Daikin is the world's leading manufacturer of air conditioning and a reliable supplier of energy-efficient heat pumps. Today, Daikin is the only company to offer all steps – from development, design, production, sales to services related to cooling, heating, ventilation, and freezing solutions – from a single source. Whether located in hot or cool climate regions, Daikin contributes to its customers' quality of life, comfort, reliable infrastructures, food security, and economic growth in a wide variety of industries.

CHALLENGE

HVAC systems are quite complicated in the sense that they have many different components that are all interrelated. If one of them stops functioning as it should, the whole system might be affected and discontinue working. While the system itself does not require internet, adding connectivity enables managing it remotely and, as such, early detection or even prevention of any issues in the system.

Another challenge is related to efficiency and resource optimization. As you may imagine, such systems consume a lot of energy, and therefore making data-driven changes and automation could result in significant financial and environmental benefits. While internet connectivity is often limited in remote industrial locations, choosing a cellular router ensures a reliable connection. The only way a manufacturer or integrator can ensure their top-quality service is when the solution has a stable, uninterrupted connection. The same applies to the benefits gained by data collection - it will only be consistent if gathered continuously as opposed to intermittently.

TOPOLOGY



SOLUTION

HVAC systems are pretty complicated in the sense that they have many different components that are all interrelated. If one of them stops functioning as it should, the whole system might be affected and discontinue working. While the system itself does not require internet, adding connectivity enables managing it remotely and, as such, early detection or even prevention of any issues in the system. Another challenge is related to efficiency and resource optimization. As you may imagine, such systems consume a lot of energy, and therefore making data-driven changes and automation could result in significant financial and environmental benefits. While internet connectivity is often limited in remote industrial locations, choosing a cellular router ensures a reliable connection. The only way a manufacturer or integrator can provide their top-quality service is when the solution has a stable, uninterrupted connection. The same applies to the benefits gained by data collection - it will only be consistent if gathered continuously instead of intermittently. The Teltonika Networks RUT240 industrial cellular router connects to the HVAC system via Ethernet cable. Internet connectivity enables easy integration with the Building Management System and remote management of the HVAC infrastructure. RUT240 cellular connectivity options make it perfect for industrial application scenarios, where the connectivity options are limited. The Building Management System collects data using the MQTT protocol and analyses it for predictions and optimization. The reports provide valuable insights on where energy exploitation could be reduced and allow automating processes. Remote management comes in handy for scheduling the operation of various devices and amending these schedules as per changing needs.

BENEFITS

- Increased efficiency – data-driven decisions help cutting energy consumption and more streamlined automated operation of the HVAC system.
- Wide temperature range – RUT240 is a professional device in a sturdy aluminum housing, which can operate in environments from -40C to 75C.
- Reliable connectivity – LTE Cat 4 with WAN failover ensures a stable and reliable connection.
- Remote support and warranty service – remote access to their devices saves manufacturers travel time and finances as they may troubleshoot and resolve the issue from the headquarters.
- Remote Management System (RMS) – offering varied functionalities, RMS allows remotely managing Teltonika Networks devices and the whole infrastructure of the solution via RMS Connect. In case of lost electricity, it sends out a “last breath” notification, which is crucial for a timely reaction.



WHY TELTONIKA NETWORKS?

As per the Remote Monitoring Center Supervisor of Daikin Central Europe, they have searched for a mobile data router “suitable for installation into the switch box of outdoor equipment. Other criteria were easy commissioning, remote troubleshooting, and of course, reasonable pricing. Of course, there are plenty of products in the market that would satisfy our needs, but Teltonika Networks single product fulfilled all the criteria at once.

Currently, we are using the RUT240 LTE routers with a wide operating temperature range, and commissioning is a plug-and-play experience. They have multiple remote troubleshooting possibilities, and all of this is at a very competitive price tag. Newer additions to the Teltonika Networks product range, for example, TRB140, offer even more possibilities to optimize the costs of the equipment internet connection.

Another significant part of the Teltonika products is their RMS cloud, enabling the remote routers’ administration. Unlike other products, RMS is an off-the-shelf solution, providing an overview and administration of all routers. We do not need any specialized knowledge to open the router’s WebUI remotely. If we need to connect to the equipment behind the router, we do not need to juggle all the dynamic DNS settings and providers. RMS provides this feature in the easiest way I have ever seen. And the future RMS developments look very promising as well, pushing the possibilities even further.”