ClimaCheck integration in existing monitoring systems

ModbusTCP gateway.

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ClimaCheck online is the most advanced analysing and early warning system for refrigeration, air-conditioning and heat pump systems on the market. Energy profiles and performance reports that are essential for energy optimisation are generated with ClimaCheck online. ClimaCheck offer a complete thermodynamic analysis and evaluation of the process that gives information on performance of the whole system as well as all components in the process. This identifies where inefficiencies occur and detect problems before they cause failures.

ClimaCheck analysis are based on thermodynamics principles and offer a fully un-biased information on performance that is independent of manufacturers input and allow validation of performance on a level that has been considered impossible with traditional field measurements. ClimaCheck offer all the information required to monitor energy consumption and efficiency in real time.

This information include essential information i.e.:

- EER/COP and System Efficiency Index
- Compressor efficiency
- Evaporator efficiency
- Condenser efficiency
- Effectiveness of controls
- Energy profiles
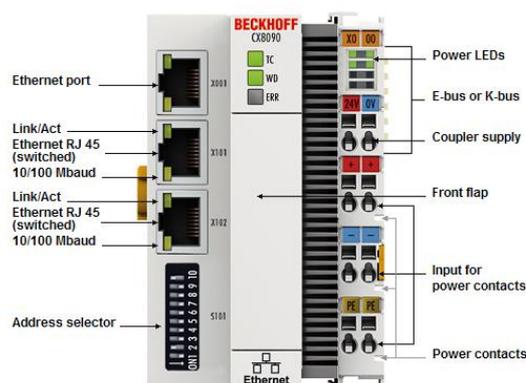- Energy statistics with hourly resolution

This information is used to decrease operating cost and ensure highest possible reliability and the energy profiling and monitoring is perfect to establish baseline performance and the result of measures. ClimaCheck is leading the development to give early warning for deviation from optimal operation of the process and alert alarm receivers via text messages and/or email. ClimaCheck offer unique information for the refrigeration/HVAC specialist in an easy to understand format that can be accessed from a PC or smartphone without any risk for the integrity of the IT-system of the plant. The complete analyses can be accessed instantaneously by in-house staff as well as external experts if so desired. This drastically decreases the cost to get expert advice to ensure best possible operation. It will also in many plants decrease the number of visits required for trouble shooting as well as leak detection as ClimaCheck offer continuous on-line detection so called "indirect leak detection". ClimaCheck online is at the same time securely isolated from the controls or sensitive administrative networks of the plant.

Communication with BMS/Scada systems

At the same time as the detailed and valuable energy and performance information is presented online it is frequently desired to have key ClimaCheck parameters presented also in existing BMS/SCADA systems. When it is requested that key performance factors is presented in a BMS/SCADA systems **ClimaCheck ModbusTCP gateway** offers an easy to integrate solution in most third party systems.

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The Climacheck ModbusTCP Gateway is a bridge between the Climacheck Online server and a local BMS/SCADA system. It is used to send and receive data between CC Online and an application running on a local network via **ModbusTCP**.

The Ethernet port (X001) is connected to the Internet, via a modem, router modem or a fixed connection. One of the other Ethernet ports (X101 or X102) is connected to the local network. 256 values/registers can be handled by the CC Gateway

Operating mode

The CC Gateway can send and receive data in several different ways:

1. Data from BMS/SCADA to Climacheck Online

A   All data is written in the Gateway by the BMS/SCADA system and then sent to Climacheck Online.
B   Some data is written in the Gateway by the BMS/SCADA system, some data comes from a PA Pro unit. The gateway gathers the data from both units and send to Climacheck Online.

2. Data from Climacheck Online to BMS/SCADA.

Data is sent to the Gateway from Climacheck Online and read by the BMS/SCADA system.

The CC Gateway is also capable of a combination of the above described operating modes where values that are written in the Gateway is sent to Climacheck Online and, simultaneously, calculated results are sent back and read by the BMS/SCADA system.

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