MANAGEMENT OF DISTRIBUTED POWER GENERATION BY KNX IoT

Secure and encrypted: Virtualisation of KNX Web Services IoT via mobile communication

Task

Solar systems produce energy depending on the solar irradiation. The unstable energy harvest causes problems with respect to energy usage and commercial exploitation but also with respect to the grid load. As a result operators of photovoltaic plants and wind power stations increasingly have the challenge to manage the current energy harvest. Dipl. Ing. Marco Koyne, Berlin, shows how the data from decentrally located plants can be securely brought together for a centralised evaluation by KNX IoT.

Solution

The generated power can be measured on site by KNX electricity meters without any problems. For a wireless transmission of the data the secure communication via mobile communication is an appropriate solution. The possibility to process the data via the KNX Web Service IoT is especially of interest. Thus they can be retrieved from the internet and further processed at a central point.

Realisation

Data like power, current, voltage and frequency are captured by KNX and forwarded via a KNX/IP Router (ABB) to a KNX Webserver Gateway (Raspberry PI). There they are processed for the web services applications. By means of the Easy Gateway EG400-HE (Aartesys) the data can be securely transmitted via mobile communication. In order to connect further devices interfaces for Ethernet, USB, S0 and RS485 are provided. The central element is a terminal PC with Windows visualisation (Agentilo Mobile). The multifunctional system for monitoring, control and visualisation in the „Internet of Things“ communicates via the portal of Aartesys.

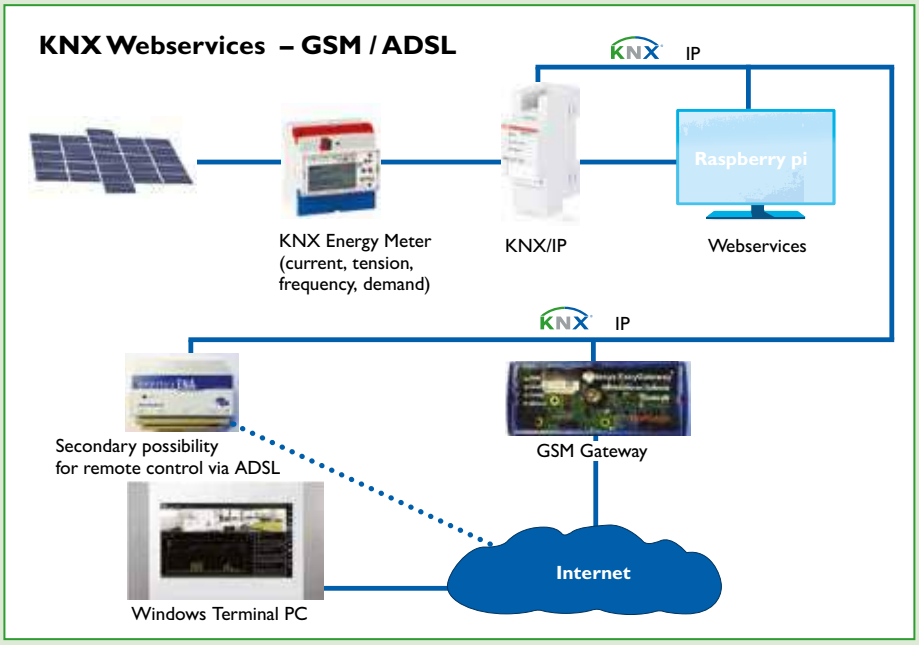
An alternative is an ADSL-connection between the KNX/IP Router and the “cloud” with secure remote access (ENA, Enertex). It enables a secured and encrypted point-to-point data transmission. Further KNX devices like sensors and actuators help to simulate the functions.

Functions

The terminal PC processes and displays the data. It is also possible to have access to further web services, e.g. to manage the current energy supply. This is shown on the example of a single family house in cooperation with the “partner panel” of Jürgen Katzenmeier.

Advantages

- Central energy management of decentralised power generators via KNX IoT.
- KNX Web Service IoT as solution for the communication via the internet
- At locations without direct internet connection secured and encrypted data transmission can be realised.



KOYNE
SYSTEM ELEKTRONIK
Koyne-System-Elektronik
intelligentes Wohnen
Marco Koyne
Dipl.-Ing. (BA) Elektrotechnik
Automatisierung
Duchrother Str. 38
D-12559 Berlin, Germany
Tel.: +49 (0)30 - 47 03 21 82
Fax.: +49 (0)30 - 47 03 21 83
Mail: info@koyne-system-elektronik.de

فراهوشمند انرژی
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