



Automatic Meter Reading

Zig-C last mile data acquisition

DIWICON-U

Energy Market Liberalization requires automatic meter reading solutions expandable to households.

The DIWICON-U product family offers an easy to deploy solution for the remote reading of utility meters in the following applications:

- Electricity distribution
- Gas distribution
- Water supply
- Heating supply



FEATURES:

Compatibility with standard meters

Meter reading devices can be connected directly to the standard meters. There is no need to change the existing utility meters.

Complete vertical solution

CASON offers a complete system based on the vertical DIWICON technology from the field devices through the central servers up till the client applications.

Safe and accurate meter reading

Since the meter reading devices are directly connected to the utility meters, security seals are used to ensure tamper proofing. The devices will send immediate alarm messages in case of vandalism, sabotage or battery discharge.

Maintenance free operation

Having no wires and contacts and the devices being sealed, there is no need for any regular maintenance for the DIWICON field devices.

Easy and fast installation

Installation of device takes not more than five minutes including administration and initial test. Mass deployment is productive and does not require highly qualified personnel.

Green-field investments

The standards based solutions and software components applied the devices can be used as part of a complete DIWICON system or can be integrated into other systems.

Brown-field investments

The installation of devices do not need any special preparation. Thanks to the applied wireless technology and the special design of the field devices, the connection to the existing system is as easy as with a brand new system.

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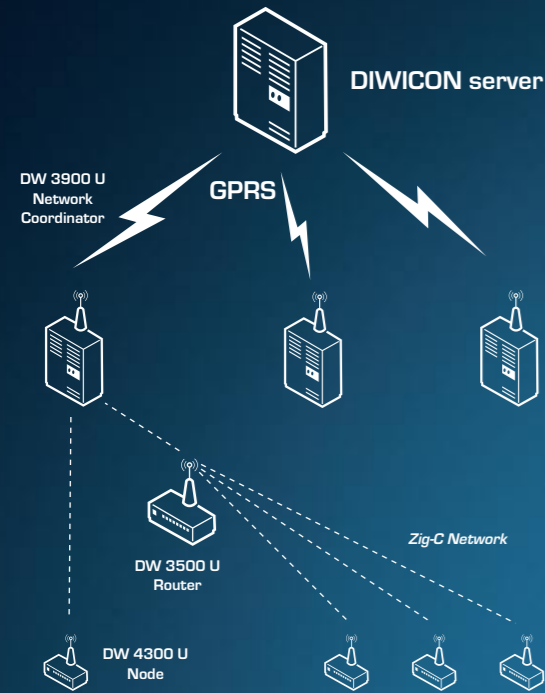
CASON Engineering Plc.
Velencei út 37.
2030 Érd, Hungary
T: +36 23 522 100
F: +36 23 522 190
e-mail: office@cason.hu
URL: www.casonplc.com

CASON Romania S.R.L.
Str. Dr. Romniceanu Grigore nr. 3
Sector 5, București
050574, România
T: +40 21 411 31 61
F: +40 21 411 31 62
e-mail: office@cason.ro
URL: www.cason.ro

CASON Limited
30A Victor Denaro
Street,
Msida MSD1603 -
MALTA
T: +356 2133 5588
e-mail:
info@casonlimited.com

Office - Russia
4, Akademicheskaya Square,
424
142191, Troitsk, Moskovskaya
Obl., Russia
T: +7 499 922 33 82
e-mail: russia@casonplc.com

TYPICAL SYSTEM STRUCTURE



Zig-C data acquisition networks have star/mesh topology. Field devices are connected to network coordinators, or - in case of larger distance - over a network routers.

This structure assures that the failure of one data acquisition device will not affect the complete system.

DW 3500 U FIELD ROUTER



The DW 3500 U Router provides transparent data transfer from the remote nodes to the central system. Because these devices form a self-organized, enhanced mesh network, the pathways of communication do not need to be pre-defined.

Nodes, routers, and coordinator devices automatically form the most efficient network topology possible.

DW 4300 U NODE

The DW 4300 U is an independent industrial wireless network endpoint used for collecting and forwarding data from utility meters.



The device is completely autonomous. The use of Zig-C technology means that communication is wireless, and power consumption is so low that the internal batteries will last for more than 5 years.

Once installed on the standard meter the device logs into the central DIWICON-U system, from which it receives its unique configuration parameters.

Based on the configuration, the device then constantly monitors the consumption as measured by the meter and transmits that data to the central database.

Monitoring of the meters is practically continuous, so the system is fully suited to the strict requirements of the liberalized market. The hourly and daily peaks, and consumption habits can be analyzed to produce trends and prognostic evaluations.

The household energy or water consumer usage can now be integrated into the central Management Systems of modern distributors.

DW 3900 U NETWORK COORDINATOR



The coordinator is responsible for both managing the local wireless network and communicating data collected by the nodes to the central system. The device receives consumption data on the Zig-C protocol and passes it on via (redundant) industrial GPRS or Ethernet.

CHARACTERISTICS

Structure

The individual elements of the system create a self-organized travelling wave based network. Each node connects to the network coordinator either directly or by way of routers. This self-organized network structure greatly extends the effective communication range while also enhancing the efficiency and simplicity.

Scalability

Each coordinator can handle several thousand nodes and routers. For all practical purposes this means that there is no limit to the size of the system since several networks can be operated side by side.

Reliability

Several methods are applied to ensure the reliable transmission of data between the elements of the system. For example, all communication is acknowledged upon reception, unsuccessful transmissions are repeated, and each device signals that it is working properly on a regular basis.

Diagnostic

Each module continuously monitors its own operating status. This can be supervised and managed from the central system, allowing for immediate intervention should any problems occur.

Digital inputs

Each endpoint node has built-in inputs. In general one is for reading the measuring device and the other is for sabotage monitoring.

Security

All transmission is secured with encryption so interception or jamming is completely ineffective. Since the nodes are directly connected to the utility meters, security seals can be used to ensure tamper proofing.

Interference protection

Communication can take place over one of 16 channels at 2.4 GHz and any of them can be used for data transfer.

Protection against external interference is further enhanced by repeating the short data packages throughout the entire system.

Remote software update

The software for the devices can be remotely updated by reloading the program stored in FLASH memory. During the software upgrade all other functions remain available.

Benefits

- Communication wires are unnecessary
- Nodes do not require external power
- Nodes connect directly to standard meters
- The installation of system elements is fast and simple
- High degree fault tolerance
- Maintenance free operation
- Remote firmware upgrade possibility
- Complete remote management