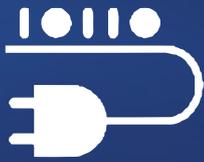


Deployed at

IPRE



ModemTec

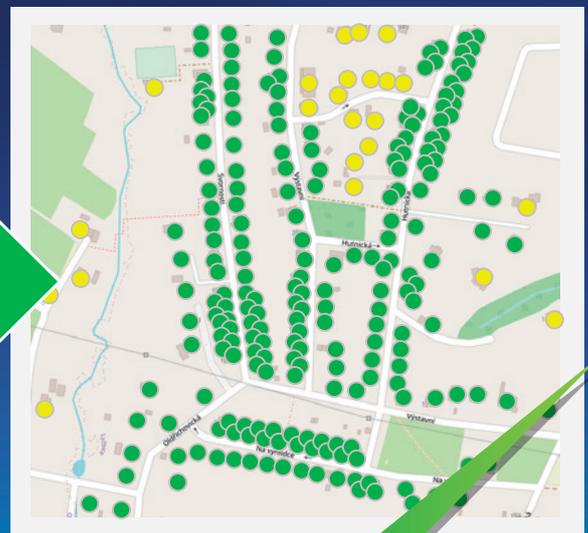
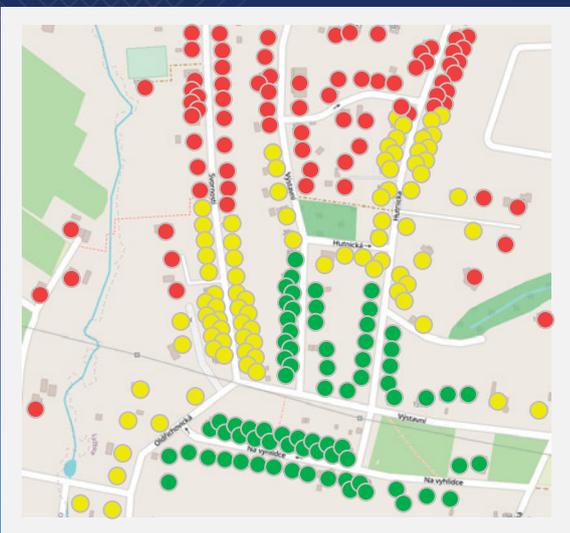


## PLC CLEANER FOR SMART GRIDS



### INCREASE YOUR E-METER READINGS

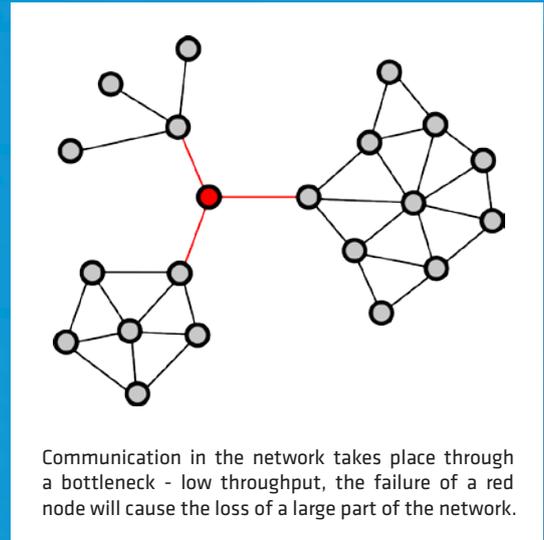
- PLC CLEANER BY MODEMTEC IS A UNIQUE DIAGNOSTIC TOOL DESIGNED TO INCREASE COMMUNICATION RELIABILITY READINGS BETWEEN SMART METERS IN BOTH, HIGH- AND LOW- DENSITY AREAS
- SUITABLE FOR ANY PLC STANDARDS USED (G3-PLC, PRIME, OSGP, METERS AND MORE, IDIS, ETC...)
- SYSTEM SUGGESTS BEST SOLUTION FOR COMMUNICATION IMPROVEMENT
- ANALYTICS, REPORTING, CONSULTING AND ADVISORY SERVICES INCLUDED
- IDENTIFICATION OF "BOTTLENECKS" THAT DECREASE RELIABILITY OF PLC COMMUNICATION
- NO NEED TO UNINSTALL SMART METERS DEPLOYED
- GDPR FRIENDLY SOLUTION



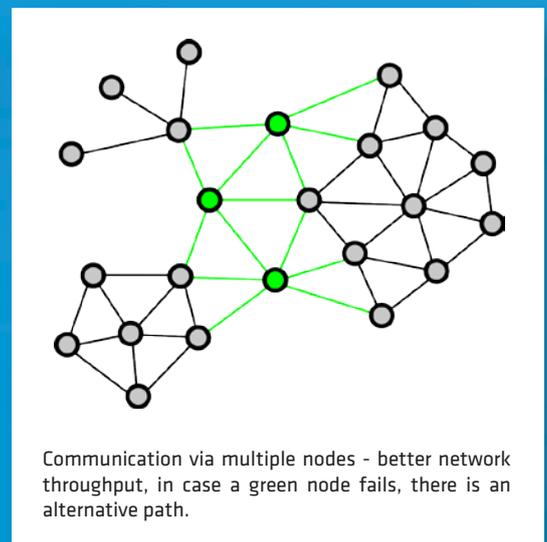
## → LESSONS FROM COMMUNICATION CHANNEL

PLC communication uses the low-voltage distribution network to transfer data. The communication protocol used is not that important, because usually the same frequency band is used, always has similar characteristics and behavior. To increase the success of PLC communication, it is necessary to find out "bottlenecks" of the communication channel.

Modern communication systems that are used e.g. in electricity meters have a built-in function of finding the optimal communication path automatically. However, this routing information is not shared, so network topology optimization is not possible.



Communication in the network takes place through a bottleneck - low throughput, the failure of a red node will cause the loss of a large part of the network.



Communication via multiple nodes - better network throughput, in case a green node fails, there is an alternative path.

## → MODEMTEC'S SOLUTION - PLC CLEANER

Since 2001, ModemTec has been dealing with both, the design of PLC communication modems, and their subsequent implementation. Due to this, these products incorporate procedures that provide information on the quality of the received signal, the state of the communication path, and other diagnostic variables such as phase monitoring (recognizing whether it is the phase to which the opposite modem is transmitting or whether it is signal received by crosstalk in the cable line).

As part of the PLC Cleaner solution, these modems are used for communication on low-voltage distribution systems, they are able to detect even the "bottlenecks" of the communication channel and, subsequently, recommend how to remove them. The big advantage of this solution is that it does not matter what standard (G3-PLC, PRIME, OSGP, METERS AND MORE, IDIS...) is deployed in a given location and there is no need to manipulate already installed electricity meters.

100011000000110  
0100011001100011  
01000110

## ➔ HOW PLC CLEANER WORKS

MT-LVPLC1 modems will be deployed in an area characterized by low or no readings. They are accompanied with a secondary 3G/4G/5G communication channel (in addition to the PLC communication itself), in order to obtain information about the behavior of the main communication channel.

## ➔ HARDWARE

The MT-LVPLC1 modem contains 4 parts:

- Own PLC modem running on the G3-PLC standard
- Sniffer, whose implementation makes it possible to read at least the unencrypted headers of all packets that are intercepted
- spectrum analyzer, which enables long-term monitoring of both, noise and interference in the vicinity of the modem, and PLC traffic (its physical level)
- Packet generator for monitoring network load at the HW level



## ➔ SOFTWARE

- Back-end: Capture of measurement results at individual points of the monitored energy network with metrics of diagnostic signals and its archiving
- Front-end: Visualization of results linked to already installed equipment, data on newly measured locations...

## ➔ DEPLOYMENT

For the necessary diagnosis of the network condition, it is necessary to deploy about 10 modems with secondary (3G/4G/5G) communication, for a period of about 10 to 20 days, and the channel diagnostics would be transmitted to the PLC Cleaner system.

After this time, the modems can then be moved to another location (for example, according to the principles of halving the interval). Within a relatively short time, it would thus be possible to have a clear idea of the behavior of the communication channel in a given location, and subsequently deploy corrective tools, which include in particular:

- ❑ **PLACING THE REPEATER IN A SUITABLE PLACE**
- ❑ **ADDING A CONCENTRATOR TO CREATE A SUBNET**

01000110011000110000001100010000  
 010001100110001100000011000  
 000110011000110000

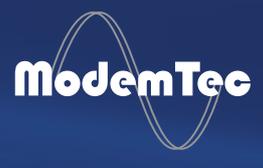
ModemTec is a reliable producer and supplier of comprehensive solutions in the field of medium and low voltage lines diagnostics, and power line communication. ModemTec has production facilities, installation competence and provides premium post-warranty services for its customers in more than 40 countries of the world. Metering International magazine placed ModemTec in the TOP 50 world's most important companies in the area of Smart Metering / Smart Grid.



WE INNOVATE TODAY AND SOLVE THE NEEDS OF TOMORROW.

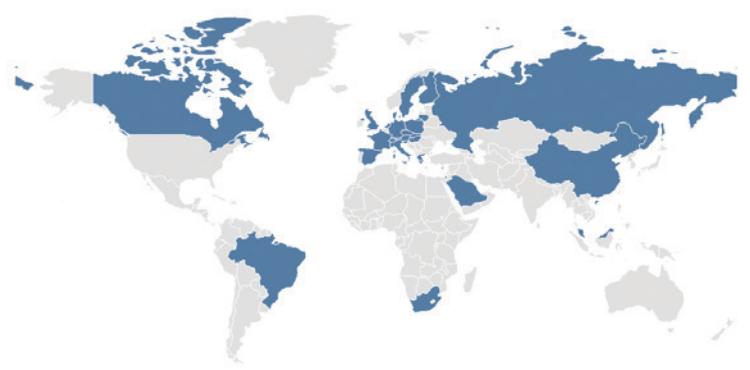


**PLC CLEANER  
 FOR SMART GRIDS**



[PLC-CLEANER.COM](http://PLC-CLEANER.COM)

**MODEMTEC IN THE WORLD**



**OUR PARTNERS**

