



## YOUR SMART GRID TECHNOLOGY PARTNER

- ☑ Reliable PLC communication
- ☑ Multiutility solution
- ☑ Intelligent data concentrators
- ☑ Measuring devices



## Company Profile

Based in the Czech Republic, ModemTec is a reliable producer and supplier of the products for Smart Grid and Smart City areas. With the strong R&D background, ModemTec delivers products based on reliable narrow-band Power Line Communication (PLC communication) – PLC modems for reliable data transmission over low (230 V) and medium (up to 35 kV) voltage, intelligent data concentrators, industrial measuring devices, and systems for remote readings of energy meters (water, gas, heat).

ModemTec products are used in many industrial areas, especially for data transmission in various areas:

- ▣ Measurement of electricity, water, gas or heat consumption
- ▣ Industrial measurement, diagnostics and data collection
- ▣ Analysis and data transmission in industry

The main benefits of our products include their reliability in heavy disturbed industrial environment.

ModemTec was founded in 2001 as a company specialized in PLC communication area. ModemTec has an experienced team of specialists in data transmission, and measurement technologies. In 2014, ModemTec opened its own Centre for Intelligent Power Engineering, which belongs among the most advanced development centers of its kind in the Central Europe. Based on our experiences, ModemTec acts as both, technology supplier for its partners, and system integrator for its final customers.



# PLC Communication

PLC (Power Line Carrier) communication technology uses existing power lines for data transmissions. This leads to cost savings for the customer. The projects are realized easily and quickly: there is no need for investment into data cables installation.

Our narrowband PLC communication is stable, reliable and able for usage even in disturbed industrial environment, with communication rate of 10 kbit/s.

A typical application for our modems is the transparent transmission of industrial data from Programmable logic controllers on distances up to several kilometers.

The proof of the high quality of our facilities is hundreds of satisfied customers who use our products not only in the heavy industry (automobile, power, steel), but also in the hospitals or offices, and residential buildings, where they use modems to transmit data from the electricity meters and other meters.



	MT39RE	MT49R	MT34R
PLC standard	MTEC		
Modulation	D-BPSK		
Maximum speed on the physical layer	10kbit/s		
Interface	Ethernet	RS485, RS232	RS485, RS232, RS422, M-Bus (optional)
Network	230 V, 50 Hz	230 V, 50 Hz	3x230/400 V, 50 Hz

# Data Transmission over Medium Voltage Lines

We offer our customers modules for both, data transmission over 230V power lines, and medium voltage (MV) lines up to 35 kV. These modules have a wide range of usage - they can be a link in Smart Grid chain, serve for remote control of transformer stations, command switching elements in a system, or serve as a general transmission channel for customer-specified use.

These products enable our customers (distribution companies, large industrial companies) to command and transmit data over long distances - often more than 30 km without any repeater. Typical applications of these devices include the management of transformer stations and other elements of distribution networks or data transmissions in the heavy industry and transport sectors.

A very important function of these devices is line diagnostics, which will detect possible problems on the MV lines (damage to cables, wires or jumpers) already in their early phase.



	MT-VN22R	MT-VN22RE	MT-VN-B
<b>PLC standard</b>	MTEC	MTEC	Prime, G3-PLC, IEEE1901.2, MTEC...
<b>Modulation</b>	D-BPSK (SCM)	D-BPSK (SCM)	BPSK, QPSK, 8-PSK... (OFDM, SCM, MCM)
<b>Maximum rate on the physical layer</b>	10kbit/s	10kbit/s	1 Mbit/s
<b>Interface</b>	RS232, RS485	Ethernet	RS232, RS485, Ethernet, GSM/3G/LTE (optional)
<b>Network</b>	Max. 35 kV inter-phased, 50 Hz		

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# Data Concentrators

ModemTec's intelligent data concentrators are an essential part of an automated, remote reading systems from Smart Grid devices, and also provide support for Smart City systems. They are able transfer data in the state received from the primary measuring device, as well as they can process the data prior sending them to superior systems. The data concentrator can manage separated tasks, or can be part of a distributed control system.

Data concentrators use advanced encryption to ensure the security of transmitted data in both ways: towards the read devices, and control (HES) systems.

All concentrators have compatible communication, and they use an optimized binary protocol. They also allow the implementation of any standard that fulfill the CENELEC EN 50065-1 norm.

## MT44D - Intelligent Data Concentrator

- primarily designed for communication with e-meters in the LV 3x230V network based on the PRIME and G3 standards.
- collects all data from the end points, stores them in the internal memory with the possibility of forwarding them to the superior system or processing directly in the concentrator.



	MT44D
Voltage	3 x 230V ± 10%
Communication PLC	Platform PRIME v R 1.3.6. + G3 + MTEC
Network interface	Ethernet 10/100, optionally modules GPRS, 3G, LTE
Local interface	Serial line (console), Ethernet 10/100
Safety	VPN, RSA, AES
Remote control	SOAP, HTTP, SSH, SCP
Interface	2x RS485 (protocol IEC, Wireless M-Bus), optionally M-Bus

# Measuring Devices

Measurement and diagnostics belong among other areas covered by ModemTec. We are able to offer our customers a turnkey solutions. We can ensure monitoring of the use of industrial CNC machines, detect tool wear, analyze profile consumption, verify the quality of power supply, and correctly set operational parameters. This minimizes energy losses and saves energy costs.



		MT-SWM03
<b>Voltage</b>		230V + 10% - 20%
<b>Measuring ranges</b>	Voltage	30 - 230V
	Current	0,1 – 5A (indirect measurement with CT x:5)
<b>Interface</b>		RS485
<b>Installation</b>		DIN 35

# Remote Energy Consumption Readings

Today's modern times require a quick and comprehensive solutions. ModemTec offers one of them: devices for remote reading of a large number of different meters (electricity, water, gas or heat). In Smart Cities, it is not sufficient anymore to read one type of meter, and send data to the central system. It is necessary to work with different types of measuring devices, to control them, and to be able to interconnect their readings.

Within one application, we are able to read all measuring devices remotely. Data transmissions are in our systems realized via PLC communication, cable, radio (Wireless M-Bus), Ethernet, or GSM/GPRS/LTE. Such a complex remote reading solution (suitable also for housing co-operatives or the building manager) can efficiently save money and the time required for single readings. In addition, there is a significant reduction in the number of devices required in the project.

# SYMUR

Fully automated system for monitoring and visualization of electricity, water, heat, and gas consumption

SYMUR (System for Multiutility Readings) is designed for those, who need to have a precise and quick overview of energy consumption, want to influence it, invoice it, save costs, and use the state-of-the-art technology. The complex system consists of energy meters (electricity meters, water meters, gas meters, and heat meters), devices for communication with meters (dongles), data concentrators, visualization and service software.

Key characteristics of the system:

- ▣ reduction of energy costs, no needs for manual readings
- ▣ support of a wide range of meters (Wireless M-Bus 868 MHz and 169 MHz, RS 485, M-Bus)
- ▣ detection of energy losses and emergency situations
- ▣ detection of unauthorized subscriptions and device intrusion
- ▣ archiving of readings
- ▣ can be connected with billing software
- ▣ online readings

It is the perfect solution for all energy suppliers, managers of sports or industrial complexes, housing cooperatives, developers, schools, hospitals, towns, municipalities, landlords, organizers of trade fairs, etc.



**WANT YOUR SOLUTION  
TO BE SMART?  
WITH ACCURATE MEASURING  
YOU SHOULD START!**

[www.modemtec.com](http://www.modemtec.com)

ModemTec s.r.o.

Oldřichovice 738

739 61 Třinec, Czech Republic

tel.: (+420) 558 324 799

email: [info@modemtec.com](mailto:info@modemtec.com)