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**MARSENERGO**  
INSTRUMENTS FOR POWER INDUSTRY

*Making energy visible*

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## POWER QUALITY ANALYZER

# MARSEN PQP

Accuracy class 0.1

### Applications

- Power quality monitoring

Applicable standards:

EN 50160: 2010, IEC 61000-4-30:2008  
and IEC 61000-4-7:2008 (class A, S)

- Electrical energy metering;  
- Various data processing and  
control systems.

Marsen PQP can work as a stand  
alone unit or part of a meter  
reading system.

### Design

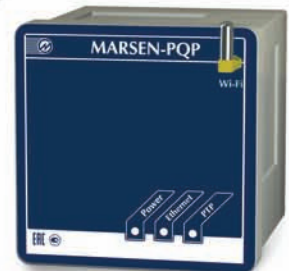
#### 1. Panel mounted (stand-alone)

#### 2. Portable (with display)

- Portable power quality analyzer;  
- Tutorial.

### Sectors of application:

Industries (power  
industry first of all),  
transport,  
housing,  
utilities  
etc.



Wi-Fi connection



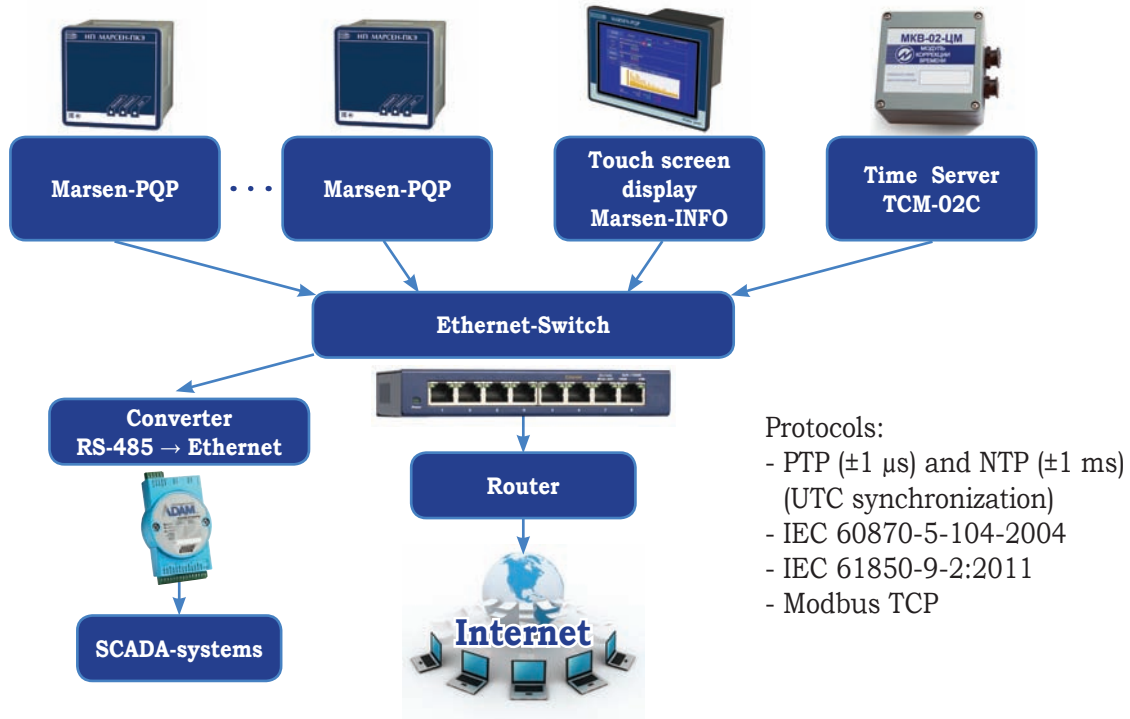
One touch-screen display  
Marsen-INFO for a group  
of Marsen-PQP meters



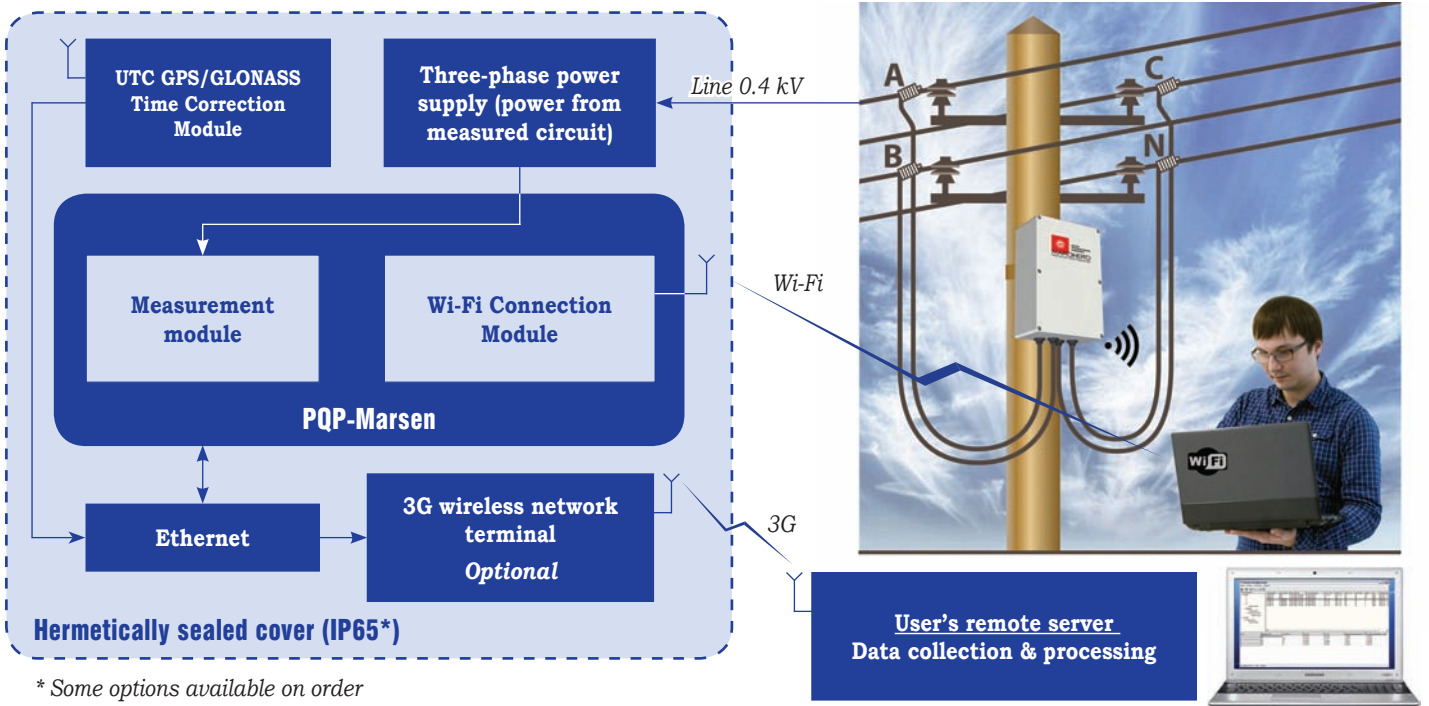
Wi-Fi connection

# PQP Data Collection & Processing systems based on Marsen-PQP

## 1. Marsview-A



## 2. Marsview-S



### Features

- Power quality measurement and analysis (class A; S);
- Launch, local data collection and diagnostics are wirelessly controlled from a portable (mobile) device via WiFi or 3G connection.

### Application

Power quality monitoring – the system is temporarily installed on a 0.4 kV power line.

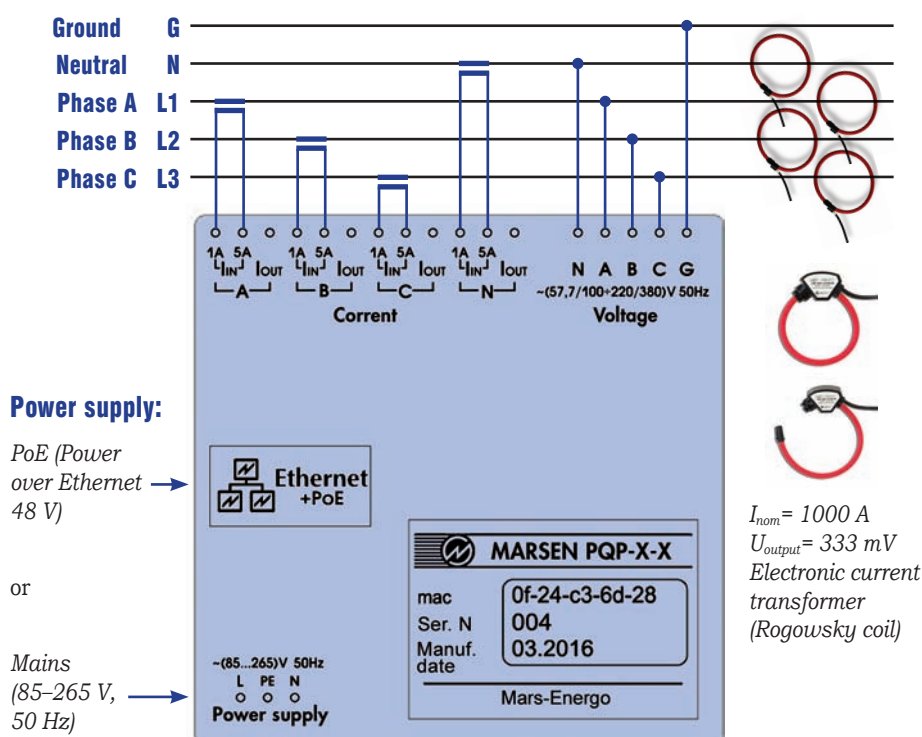
## Measurement functionality

Power quality (IEC 61000-4-30, class A, S)
Under- and overdeviation of voltage
$\delta U(-)$ $\delta U(+)$
Deviation of frequency
$\Delta f$
Unbalance
$u_2$ $U_2$ $u_0$ $U_0$ $U_1$ $i_2$ $i_0$
Flicker
$P_{st}$ $P_{It}$
Accidental events
$U_{MAX}$ $\Delta t_{sw}$ $U_{res}$ $\Delta t_{dip}$
Harmonics / Interharmonics
$K_U$ $K_{U(n)}$ $U_{sg,h}$ $U_{isg,h}$ $K_I$ $K_{I(h)}$ $I_{Cm}$ (IEC 61000-4-7, class I)

Measurement accuracy
Voltage ( 3-phase, 4 measurement channels)
0.6...760 V ( $\pm 0.1$ %)
Current (4 measurement channels)
0.01...10 A ( $\pm 0.1$ %)
Frequency
42.5...75 Hz ( $\pm 0.01$ %)
Phase angles
0...360° ( $\pm 0.1$ %)
General
Dimensions / Weight
144 × 144 × 78 mm / 1.0 kg

Electrical Energy Audit
Averages of electrical parameters (averaging time from 3 s to 120 min)
Voltage, current: $U$ $U(1)$ $I$ $I(1)$
Power: $P$ $Q$ $S$ $P_{(h)a}$ $P_{(h)b}$ $P_{(h)c}$ $Q_{(1)1}$ $K_P$
Phase angles: $\Phi_{U1}$ $\Phi_{U10}$ $\Phi_{U12}$ $\Phi_{U1(h)}$
Energy
active: $W_a$ $W_{a(1)1}$ $W_{a(1)}$ (accuracy class 0.2S)
reactive: $W_r$ $W_{r(1)1}$ $W_{r(1)}$ (accuracy class 1)
Instantaneous values (in 10 ms periods)
4 voltage and 4 current channels

### Connecting Marsen-PQP to measured circuits



Advantages
Current measurements with electronic current transformers (ECT)
Input signals accepted:
- Current signals within 50 A ... 5 kA range,
- Voltage signals (from an external integrator) with $U_{nom} = 333$ mV
- Voltage signals within 22.5 mV to 5 V range
Flexible configuration of 4 voltage and 4 current channels allows (in case of connection and configuration mistakes):
- The channels to be reconfigured or interchanged;
- Direction of currents to be reversed;
- Nominal and threshold settings to be changed;
- All these things can be done even after making measurements
Logging capacity: 90 days for data averaged over 3 s
128 GB for data storage
100 Mbit Ethernet
24-bit ADCs provide 50 000 samples /s per each channel

# Web-Interface Data view

Viewing current  
PQP values via  
Web-Interface

Test reports on compliance to  
EN50160 (or customer-defined)  
limits in pdf and csv formats

Displaying  
and recording  
of averages

Types of logs:  
- Events  
- Instantaneous values of U  
and I with T/2 (10ms) periods  
- Energy (kWh, kVarh, kVAh)



Actual readings



Logs

