

NP40
- PORTABLE POWER QUALITY ANALYZER

NP40 power quality analyzer is the professional portable device to measure and analyze the power system quality, supply the harmonics analysis and power quality data analysis, also provide big memory for the data storage, which is used to make the long term logger measuring to power system. The PC software can simply upload the data to PC for full analysis.

FEATURES

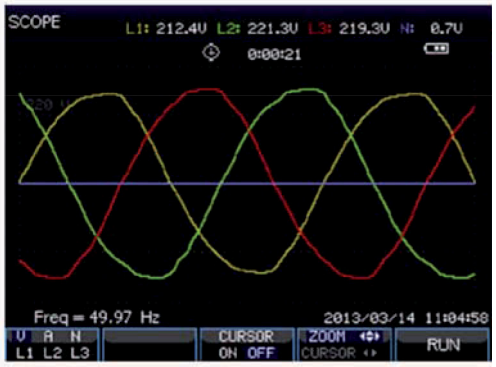
- 5,6" TFT color screen, 320 x 240 pixel.
- Waveform real-time display (4 voltages/4 currents).
- Half cycle RMS measurement (voltage and current).
- Measurement of TRMS currents up tp 3000 A (with standard probes mode).
- Measurement in 1-phase and 3-phase systems (3 - and 4-wire).
- Measurement of voltage, current, harmonics, power, energy, inrush current, flicker and other.
- Graphical presentation of data in a waveform and vector diagram.
- Record of events: dips, swells, overvoltages.
- Power quality according to EN-50160 standard or user-defined limit (registration time from 2 hours to 7 days).
- Registration of user-defined parameters in the 8GB internal memory (frequency of registration from 1 second up to 60 minutes, registration time from 2 h up to 1 year).
- Ethernet interface for remote operation of the analyzer.
- USB Host to move archive data and screenshots to an external USB memory.
- Safety standards: EN 61010-1, CAT III 1000V / CAT IV 600V.
- The analyser set: analyzer, voltage tests leads aligator clips (5x), DC power adapter, CD with software, user's manual.





NP40 - PORTABLE POWER QUALITY ANALYZER

MEASUREMENTS MODES



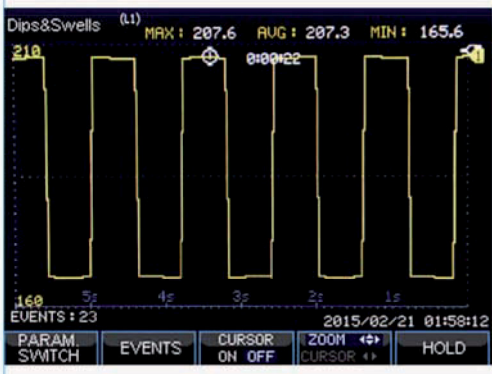
1 Scope

View the voltage/current waveform and readings. Cursor Zoom function.

2 Voltage/Current/Frequency

Measure voltage/current/frequency and crest factor.



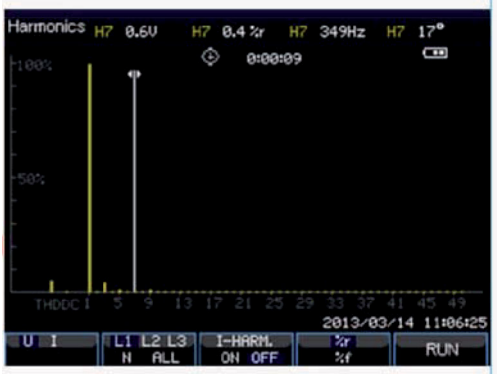


3 Dips & Swells

Capture the abnormal event, such as swells, dips, interruption and rapid voltage change.

4 Harmonics

Harmonics and interharmonics measurement up to the 50th, parameter DC component, THD, K-factor.



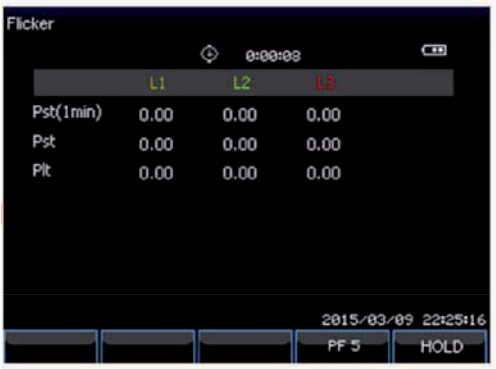


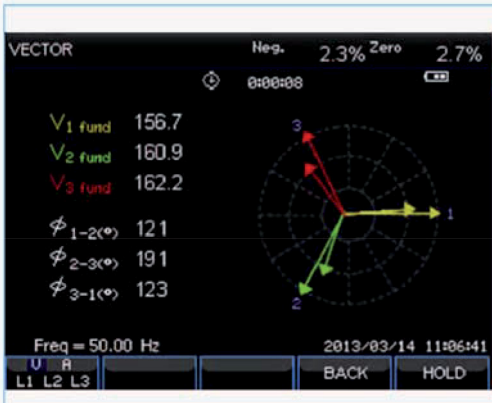
5 Power and energy

Full power parameters measurement including Vrms/Arms/KW/KVA/KVAR/TPF/DPF and energy data KWh/kVAh/kVARh.

6 Flicker

Support measure the parameters Pst (<10 min), Plt (<2 hrs), also Pst (1 min) for quick feedback and instant flicker pinst in trend.



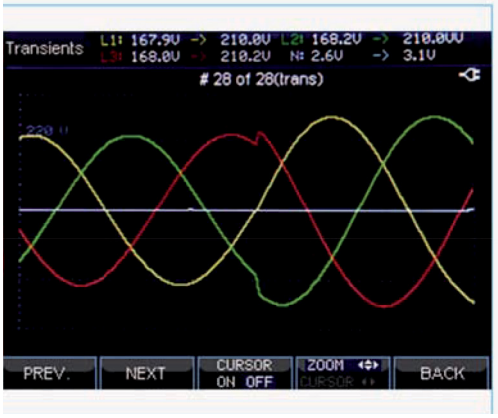


7 Unbalance

Check the unbalance in 3 phases based on EN 61000-4-30 standard.

8 Transients

Capture waveform at high-resolustion during a variety of disturbances, maximum 100 events, sample rate 20Ks/s.



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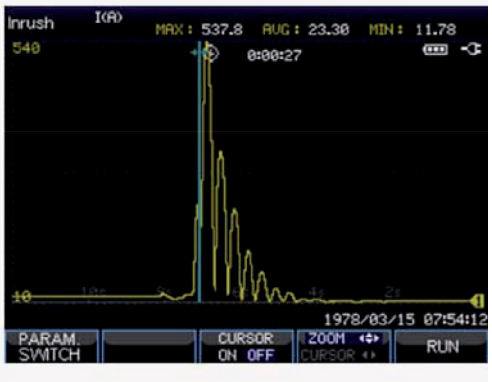
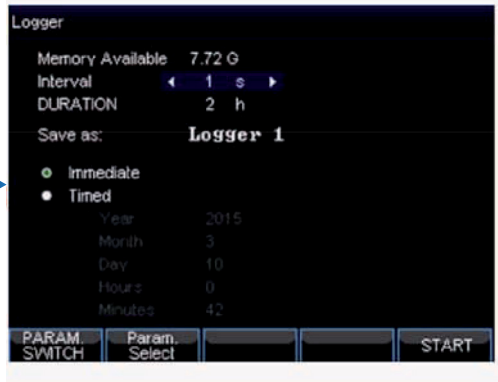


Inrush current **9**

Capture the surge currents that occur in a large or low-impendance load comes on line.

10 **Logger**

Record the measuring data as selectable parameters and interval, duration. The saved data in TF card, which can be downloaded to PC by USB and check by Power View software.





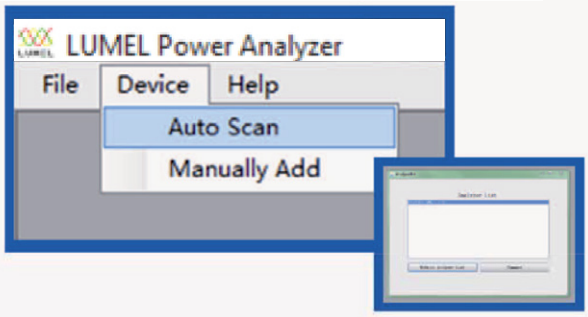
Monitor **11**

Measure all the parameter Vrms, Arms, harmonics, flicker, dip, swell, rapid voltage change, interruption, unbalance, frequency at the same time, checkwhether meet the requirements limited by users or default standards EN50160. The monitoring time lasts from 2 hours to 7 days.

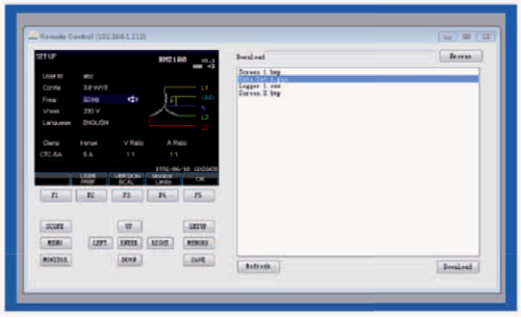
LUMEL POWER ANALYZER SOFTWARE

LUMEL Power Analyser is easy operation software to make the remote control to analyzer and view the download data.

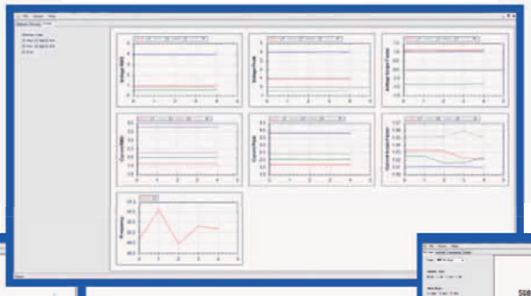
AUTO Scan the device connected to PC through LAN interface



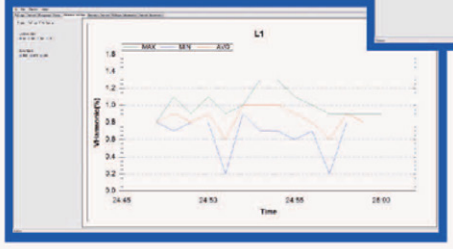
Remote control interface



Monitor the user-demanded parameters



Visual view of data trend (max, min, average)



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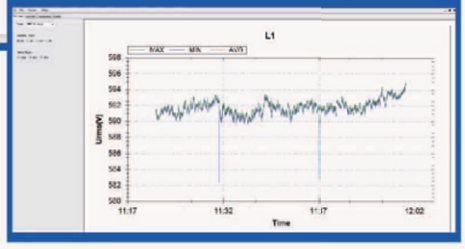

TECHNICAL DATA

INPUTS

VOLTAGE INPUTS	
Input Channels	4 (3-phase + neutral)
Max. input voltage	1000 Vrms
Range of nominal voltage	50...500V
Max pulse peak voltage	6kV
Bandwidth	>3kHz
Input impedance	4MΩ/5pF
CURRENT INPUT	
Number of input	4 (3-phase+ neutral) DC coupling
Type	clamp current sensor with mV output
Input range	1...3000 Arms with supplied current clamp
Input Impedance	50 kΩ
Bandwidth	>3kHz
SAMPLING SYSTEM	
Resolution	8 channels 16 bits AD
Sampling rate	20kS/s for each channel, 8 channels sample synchronously
RMS sampling	5000 points for 10/12 cycles (according to EN 61000-4-30)
PLL synchronizacja	4096 points for 10/12 cycles (according to EN 61000-4-7)

MEASUREMENT

	Measurement range	Resolution	Accuracy
VOLTAGE/CURRENT/FREQUENCY			
Vrms (AC+DC)	1 ~ 1000Vrms	0.1Vrms	± 0.5% of nominal voltage
Vpk	1 ~ 1400Vpk	0.1Vpk	± 0.5% of nominal voltage
V (crest factor)	1.0 ~ >2.8	0.01	± 5%
Arms (AC)	1~ 1000A/3000A/5000A	1A	± 1% ± 2A
	1~ 100A	0.1A	± 1% ± 0.2A
Apk	1 ~ 4000Apk	1A	± 1% ± 2A
A (crest factor)	1 ~ 10	0.01	± 5%
Frequency	42.5 ~ 57.5Hz (50Hz nominal)	0.01Hz	± 0.01Hz
	51 ~ 69Hz (60Hz nominal)	0.01Hz	± 0.01Hz
DIPS & SWELLS			
Vrms1/2	0 ~ 200% of nominal voltage	0.1Vrms	± 1%
Arms1/2	1 ~ 3000A	1A	± 1% ± 2A
Threshold levels	Threshold is settable according to nominal voltage percentage. Detectable events type: dips, swells, interruption, voltage rapid change.		
Duration	hour-minute-second-microsecond	0.5 period	1 period

MEASUREMENT

	Measurement range	Resolution	Acuuracy
HARMONIC			
Harmonnic number	1 ~ 50		
Inter-harmonic	1 ~ 49		
Harmonic voltage	0.0 ~ 100.0%	0.1%	±0.1% ± nx0.1%
Harmonic current	0.0 ~ 100.0%	0.1%	±0.1% ± nx0.1%
THD	0.0 ~ 100.0%	0.1%	±2.5%
DC Relative	0.0 ~ 100.0%	0.1%	±0.2%
Frequency	0 ~ 3500Hz	1Hz	1Hz
Phase	-360° ~ 0°	1°	± nx1.5°
POWER & ENERGY			
Active power P (kW), apparent power S (kVA), reactive power Q 9kvar)	1.0 ~ 20.00MW	0.1kW	± 1.5 ±10 characters
Kilowatt-hour	0.00kWh ~ 200GWh	10Wh	± 1.5 ±10 characters
Power factor (TPF)	0 ~ 1	0.01	± 0.03
Cosφ (DPF)	0 ~ 1	0.01	± 0.03
Tgφ (tanØ)	-10...10	0,01	± 3
FLICKER			
Pst (1min), Pst, Plt, PF5	0.00 ~ 20.00	0.01	±5%
UNBALANCE			
Voltage	0.0 ~ 5.0%	0.1%	± 0.5%
Current	0.0 ~ 20.0%	0.1%	± 1%
Voltage phase	-360° ~ 0°	1°	± 2 digits
Current phase	-360° ~ 0°	1°	± 5 digits
VOLTAGE TRANSIENT			
Vpk	±6000 Vpk	1V	±15%
Vrms	10 ~ 1000Vrms	1V	±2.5%
Min. Test Time	50us		
Sampling rate	20kS/s		
INRUSH CURRENT			
Arms (AC+DC)	0~3000 Arms	0,1	±1% ± 5 digits
Inrush duration	6s ~ 32min selectable	10 ms	±20 ms
LOGGER			
Recording	user-definded parameters for 4 phases at the same time		
Memory	data stored in TF card, 8GB		
Duration time	2 hrs to 1 year		
Interval	1s to 1 hr		

GENERAL CHARACTERISTICS

DISPLAY	
Screen	color TFT LCD
Size	5,6 inch
Resolution	320×240
Brigthness	adjustable
HOUSING	
Protection	protection shield, strong
IP	IP51, acc. to EN 60529
INTERFACE	
USB Host	Download file to PC by U disk for analyze with PC software.
LAN	For remote control of the analyzer and measurement data transmission.
MEMORY	
FLASH memory	128MB
Tf card	8GB
MECHANICAL	
Dimension	262× 173 × 66mm
Weight	1.6 kg
ENVIROMENT	
Working temperature	0°C~ 40°C
Storage temperature	-20°C~ 60°C
Humidity	90% relative humidity
POWER	
Adapter input	90~264V
Adapter output	9V 2.2A
Battery	rechargeable lithiumion 7.4V 4.4Ah
Battery working time	> 7 hours
Battery charge time	4 hours
STANDARD	
Measurement method	EN 61000-4-30 Class-S
Measurement performance	EN 61000-4-30 Class-S
Power quality monitoring	EN 50160
Flicker	EN 61000-4-15
Harmonic	EN 61000-4-7
ELECTRICAL SAFETY	
Comply with	EN 61010-1
MAx. voltage at voltage input	600V CAT IV, 1000V CAT III
Max. voltage at current input	30V

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ANALYZER SET

Voltage tests leads aligator clips	lenght 2m, 5 pcs
Power adapter DC	1 pc
Power patch cord	1 pc
Soft carry bag	1 pc
Hang strap	1 pc
CD wit software, user's manual	1 pc each

THE SPECIFICATION OF ADDITONAL EQUPIMENT (CURRENT CLAMPS/ ROGOWSKI COILS)

Model	Range	Turns ratio	Accuracy	Size mm
KLC8C-5A (clamps)	5A	10mV/A	0.2%	Φ8
CTC0080 (clamps)	50A	10 mV/A	0.2%	Φ8
CTC0130 (clamps)	100A	10 mV/A	0.2%	Φ13
CTC1535 (clamps)	1000A	1 mV/A	1.0%	Φ52
PY-3000A (Rogowski coils)	3000A	65 mV/1000A	1.0% (+2% position error)	Φ162
PY-5000A (Rogowski coils)	5000A	50 mV/1000A	1.0% (+2% position error)	Φ143

ORDERING CODE

Table 1. NP40 ordering code:

Portable power quality analyzer NP40 -	X	XX	X	X
Additional equipment:				
lack	0			
4 pcs. Rogowski coils PY 3000 A	1			
4 pcs. Rogowski coils PY 5000 A	2			
4 pcs. current clamps KLC8C 5 A	3			
4 pcs. current clamps CTC0080 50 A	4			
4 pcs. current clamps CTC0130 100 A	5			
4 pcs. current clamps CTC1535 1000 A	6			
Version:				
standard		00		
custom-made*		XX		
Language:				
Multilanguage (Polish/English)			M	
other*			X	
Acceptance tests:				
without extra requirements				0
with an extra quality inspection certificate				1
acc. to customer's request*				X

* after agreeing with the manufacturer



ND40
- NEW POWER NETWORK ANALYZER/RECORDER



- Measurement and recording of over 500 electric energy quality parameters acc. to EN 50160, EN 61000-4-30, EN 6100-4-7 standards.
- Measuring class A - for 3 second aggregation. 10 minute and 2 hour aggregation - class S.
- Operation in 3 or 4-wire, 3-phase, balanced or unbalanced power networks.
- Analysis of current and voltage harmonics up to the 51 st for class I (acc. to EN 61000-4-7).
- Configurable archives of actual values and event recording.
- Data archiving on an SD card - memory up to 32 GB.
- Web Server, FTP Server.
- Interfaces: RS-485 Modbus Slave, Ethernet 100 Base-T (Modbus TCP Server), USB Device & Host.
- Colour touch screen: LCD TFT 5.6", 640 x 480 pixels.
- IP65 protection grade from the frontal side.
- Synchronization of RTC clock with the NTP time server.

LUMEL
EVERYTHING COUNTS

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Via Lirone 60/i

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