

1. GENERAL DESCRIPTION

Thanks to a new design, advanced technology and graphical user interface, the **PQA924 Class S** power analyzer has dramatically reduced the complexity of power quality analysis and effectively improved troubleshooting situations.

The **PQA924** is designed to perform power quality studies with automated measurements, a touch screen user interface and configuration, high accuracy specifications and a simplified reporting platform.

The **PQA924** is designed to perform power quality measurements according to **IEC/EN61000-4-30** guideline, offering advanced auto-configuration functions and intuitive software for analyzing results and generating reports. The **PQA924** also offers high accuracy (**Class S**) which is commonly used in advanced power quality investigations.

The **PQA924** can record **up to 3180 channels** and voltage-current events simultaneously:

- **Up to 386** channels Max, Min, Average between network parameters (130 categories: frequency, voltages, currents, powers, etc.)
- **Up to 2225** harmonic data (63rd order voltages, harmonic currents, amplitudes and phases, 63rd order harmonic powers, amplitude, THD%, k-factors)
- **Up to 536** inter-harmonic data (63rd inter-harmonic groups for voltages and currents, THI%)
- **Up to 24** channels on energy data (active and reactive energies)
- **Up to 6 channels** on flicker data (Pst, Plt voltages)
- Voltage anomalies events such as dips, swells and interruptions with 10ms (50Hz) resolution
- Fast transient voltage events with 1μs resolution
- Inrush currents



2. TECHNICAL SPECIFICATIONS

Accuracy calculated as $\pm[\text{reading} + \text{value}]$ at 23°C $\pm 5^\circ\text{C}$, <70%RH and not declared for values outside the indicated measuring ranges

AC TRMS Voltage (L-L / L-N) – Class S (IEC/EN61000-4-30)

Range [V]	U _{din} [V]	Resolution [V]	Accuracy (V<20%U _{din})	Accuracy Class S (20% ÷ 120% U _{din})
0.00 ÷ 999.99	100 ÷ 690	0.01	$\pm(1.0\%\text{rdg}+10\text{dgt})$	$\pm(0.5\%\text{U}_{\text{dinMIN}})$

U_{din} = nominal system voltage; Max crest factor: 1.5

The instrument can be connected to external CTs with a transformation ratio included in the range: 1 ÷ 9999

Frequency - Class S (IEC/EN61000-4-30)

Range [Hz]	Resolution [Hz]	Accuracy
42.50 ÷ 57.50	0.01	$\pm 0.05\text{Hz}$
51.00 ÷ 69.00		

Signal frequency detected between inputs L1-N o L1-L2

Voltage anomalies – (L-L / L-N) – Class S (IEC/EN61000-4-30)

Range [V]	Voltage Resolution [V]	Anomalies Resolution	Durat. Anom. Resolution	Voltage Accuracy	Time Accuracy
1.00 ÷ 999.99	0.01	½ cycle	1 cycle	$\pm(1.0\%\text{U}_{\text{dinMIN}})$	± 2 cycles

U_{din} = nominal system voltage; Anomaly hysteresis: 2%; Frequency range: 42.5Hz ÷ 69.0Hz; U_{din} voltage frequency: 100 ÷ 690V ; Limit threshold: $\pm 1\% \pm 30\%$; Voltage crest factor: 1.41

Fast transients – (L-PE - Single/Threephase systems) – Class S (IEC/EN61000-4-30)

Range [V]	Voltage resolution [V]	Time resolution[s]	Accuracy
-8000 ÷ 8000	10	1μ	$\pm 3\%\text{FS}$

Max number of recordable events: 2000; Frequency range: 42.5Hz ÷ 69.0Hz; Minimum thres.: 200V/μs ; Set threshold: 50V ÷ 8kV

Flicker (Single/Threephase systems) – Class S (IEC/EN61000-4-30)

Parameter	Range	Resolution	Accuracy
Pst	0.400 ÷ 4.000	0.001	10%
Plt			

AC TRMS Current (Standard Transducer clamp STD) Class S (IEC/EN61000-4-30)

Range [mV]	Resolution [mV]	Accuracy
1.0 ÷ 99.9	0.1	$\pm(2.0\%\text{rdg}+0.5\text{mV})$
100 ÷ 999.9		$\pm(2.0\%\text{rdg})$ Class S

Signal values <1mV are zeroed; Frequency range: 42.5Hz ÷ 69.0Hz; Crest factor: ≤ 3

AC TRMS Current (FLEX Transducer – FS=300A) Class S (IEC/EN61000-4-30)

Range [mV]	Resolution [μV]	Accuracy
0.085 ÷ 2.55	8.5	$\pm(2.0\%\text{rdg}+42.5\mu\text{V})$
2.55 ÷ 25.5		$\pm(2.0\%\text{rdg})$ Class S

Signal values <85μV are zeroed; Frequency range: 42.5Hz ÷ 69.0Hz; Crest factor: ≤ 3

AC TRMS Current (FLEX Transducer – FS=3000A) Class S (IEC/EN61000-4-30)

Range [mV]	Resolution [μV]	Accuracy
0.85 ÷ 25.5	85	$\pm(2.0\%\text{rdg}+425\mu\text{V})$
25.5 ÷ 255		$\pm(2.0\%\text{rdg})$ Class S

Signal values <850μV are zeroed; Frequency range: 42.5Hz ÷ 69.0Hz; Crest factor: ≤ 3

AC TRMS Current (FLEX Transducer – FS=6000A) Class S (IEC/EN61000-4-30)

Range (mV)	Resolution (μV)	Accuracy
1.7 ÷ 51.0	170	$\pm(2.0\%\text{rdg}+850\mu\text{V})$
51.0 ÷ 510		$\pm(2.0\%\text{rdg})$ Class S

Signal values <1.7mV are zeroed; Frequency range: 42.5Hz ÷ 69.0Hz; Crest factor: ≤ 3



AC TRMS Current (FLEX Transducer – FS=10000A) Class S (IEC/EN61000-4-30)

Range [mV]	Resolution [μ V]	Accuracy
1.7 ÷ 85.0	283	$\pm(2.0\%rdg + 1400\mu V)$
85.0 ÷ 850		$\pm(2.0\%rdg)$

Signal values <1.7mV are zeroed; Frequency range: 42.5Hz ÷ 69.0Hz; Crest factor: ≤ 1.8

Inrush current - (Standard Transducer clamp STD)

Range [mV]	Voltage Resolution [mV]	Time Resolution	Voltage Accuracy	Time Accuracy
1.0 ÷ 999.9	0.1	$\frac{1}{2}$ cycle	$\pm(2\%rdg + 0.5mV)$	$\pm \frac{1}{2}$ cycle

Signal values <1mV are zeroed; Frequency range: 42.5Hz ÷ 69.0Hz; Crest factor: ≤ 3

Inrush current - (FLEX Transducer – FS=300A)

Range [mV]	Voltage Resolution [μ V]	Time Resolution	Voltage Accuracy	Time Accuracy
0.085 ÷ 25.5	8.5	$\frac{1}{2}$ cycle	$\pm(2\%rdg + 42.5\mu V)$	$\frac{1}{2}$ cycle

Signal values <85 μ V are zeroed; Frequency range: 42.5Hz ÷ 69.0Hz; Crest factor: ≤ 3

Inrush current - (FLEX Transducer – FS=3000A)

Range [mV]	Voltage Resolution [μ V]	Time Resolution	Voltage Accuracy	Time Accuracy
0.85 ÷ 255	85	$\frac{1}{2}$ cycle	$\pm(2\%rdg + 425\mu V)$	$\frac{1}{2}$ cycle

Signal values <850 μ V are zeroed; Frequency range: 42.5Hz ÷ 69.0Hz; Crest factor: ≤ 3

Inrush current - (FLEX Transducer – FS=6000A)

Range [mV]	Voltage Resolution [μ V]	Time Resolution	Voltage Accuracy	Time Accuracy
1.7 ÷ 510	170	$\frac{1}{2}$ cycle	$\pm(2\%rdg + 425\mu V)$	$\frac{1}{2}$ cycle

Signal values <1.7mV are zeroed; Frequency range: 42.5Hz ÷ 69.0Hz; Crest factor: ≤ 3

Inrush current - (FLEX Transducer – FS=10000A)

Range (mV)	Voltage Resolution [μ V]	Time Resolution	Voltage Accuracy	Time Accuracy
1.7 ÷ 850	283	$\frac{1}{2}$ cycle	$\pm(2\%rdg + 710\mu V)$	$\frac{1}{2}$ cycle

Signal values <1.7mV are zeroed; Frequency range: 42.5Hz ÷ 69.0Hz; Crest factor: ≤ 1.8

Amplitude Voltage Harmonics / Interharmonics - Class S (IEC/EN61000-4-30)

Order	Condition	U _{din} [V]	Resolution [V]	Accuracy
DC ÷ 63°	U _h $\geq$ 3%U _{din}	100 ÷ 690	0.01	$\pm 10\%rdg$
	U _h < 3%U _{din}			$\pm 0.30\%U_{din}$

U_{din} = nominal system voltage, Frequency fundamental range: 42.5Hz ÷ 69.0Hz

Phase Voltage Harmonics - Class S (IEC/EN61000-4-30)

Order	Condition	U _{din} [V]	Resolution [°]	Accuracy
DC ÷ 63°	U _h $\geq$ 3%U _{din}	100 ÷ 690	0.01	$\pm 10\%rdg$
	U _h < 3%U _{din}			$\pm 0.30\%U_{din}$

U_{din} = nominal system voltage, Frequency fundamental range: 42.5Hz ÷ 69.0Hz

Amplitude Current Harmonics / Interharmonics - Class S (IEC/EN61000-4-30)

Order	Condition	Resolution [A]	Accuracy
DC ÷ 63°	I _h $\geq$ 10%FS	0.1	$\pm 10\%rdg$
	I _h < 10%FS		$\pm 0.30\%FS$

FS = Full scale transducer clamp; Frequency fundamental range: 42.5Hz ÷ 69.0Hz



Phase Current Harmonics - Class S (IEC/EN61000-4-30)

Order	Condition	Resolution [°]	Accuracy
DC ÷ 63°	Ih ≥ 10%FS	0.01	±(order h x 1°)
	Ih <10%FS		±(2 x order h x 1°)

FS = Full scale transducer clamp; Frequency fundamental range: 42.5Hz ÷ 69.0Hz

Power Harmonics - Class S (IEC/EN61000-4-30)

Voltage condition	Current condition	Udin [V]	Resolution [W]	Accuracy
Uh ≥ 3%Udin	Ih ≥ 10%FS	100 ÷ 690	0.1	±(20%rdg+10dgt)
	Ih <10%FS			±(0.30%FS+10%rdg+10 dgt)
Uh <3%Udin	Ih ≥ 10%FS			±(0.30%Udin+10%rdg+10 dgt)
	Ih <10%FS			±(0.30%Udin+0.30%FS+10 dgt)

FS = Full scale transducer clamp ; Udin = nominal system voltage, Frequency fundamental range: 42.5Hz ÷ 69.0Hz

Active/Apparent Power/Energy (V: [80%..120%Udin], I:FS[1..3000A], cosφ = 1) – STD Clamp

Current Range [mV]	Range [W], [Wh], [VA]	Resolution [W] [Wh], [VA]	Accuracy
10 ÷ 50	0.000 x FS ÷ 9.999 x FS 10.00 x FS ÷ 99.99 x FS 100.0 x FS ÷ 999.9 x FS	0.001 x FS 0.01 x FS 0.1 x FS	±(2.0%rdg)
50 ÷ 1000	1.000k x FS ÷ 9.999k x FS 10.00k x FS ÷ 99.99k x FS 100.0k x FS ÷ 999.9k x FS 1000k x FS ÷ 9999k x FS	0.001k x FS 0.01k x FS 0.1k x FS 1k x FS	±(1.5%rdg)

FS = Full scale clamp; Fundamental frequency: 42.5 ÷ 69Hz, Sinusoidal voltages and currents

Active/Apparent Power/Energy (V: [80%..120%Udin], I:FS=300A, cosφ = 1) – FLEX Clamp

Current Range [mV]	Range [W], [Wh], [VA]	Resolution [W] [Wh], [VA]	Accuracy
0.255 ÷ 1.275	0.0 ÷ 999.5 1.000k ÷ 9.999k	0.5 0.005k	±(2.0%rdg)
1.275 ÷ 25.5	10.00k ÷ 99.99k 100.0k ÷ 999.9k 1000k ÷ 9999k	0.05k 0.5k 5k	±(1.5%rdg)

Fundamental frequency: 42.5 ÷ 69Hz, Sinusoidal voltages and currents

Active/Apparent Power/Energy (V: [80%..120%Udin], I:FS=3000A, cosφ = 1) – FLEX Clamp

Current Range [mV]	Range [W], [Wh], [VA]	Resolution [W] [Wh], [VA]	Accuracy
2.55 ÷ 12.75	0 ÷ 9999 10.00k ÷ 99.99k 100.0k ÷ 999.9k	5 0.05k 0.5k	±(2.0%rdg)
12.75 ÷ 255	1000k ÷ 9999k 1.000M ÷ 9.999M	5k 0.005M	±(1.5%rdg)

Fundamental frequency: 42.5 ÷ 69Hz, Sinusoidal voltages and currents

Active/Apparent Power/Energy (V: [80%..120%Udin], I:FS=6000A, cosφ = 1) – FLEX Clamp

Current Range [mV]	Range [W], [Wh], [VA]	Resolution [W] [Wh], [VA]	Accuracy
5.1 ÷ 25.5	0 .. 9999 10.00k .. 99.99k 100.0k .. 999.9k	5 0.05k 0.5k	±(2.0%rdg)
25.5 ÷ 510	1000k .. 9999k 1.000M .. 9.999M	5k 0.005M	±(1.5%rdg)

Fundamental frequency: 42.5 ÷ 69Hz, Sinusoidal voltages and currents



Active/Apparent Power/Energy (V: [80%..120%U _{din}], I: FS=10000A, cosφ = 1) – FLEX Clamp			
Current Range [mV]	Range [W], [Wh], [VA]	Resolution [W] [Wh], [VA]	Accuracy
5.1 ÷ 25.5	0 .. 9999	5	±(2.0%rdg)
25.5 ÷ 850	10.00k .. 99.99k 100.0k .. 999.9k 1000k .. 9999k 1.000M .. 9.999M	0.05k 0.5k 5k 0.005M	±(1.5%rdg)

Fundamental frequency: 42.5 ÷ 69Hz, Sinusoidal voltages and currents

Reactive Power/Energy AC – (V:[80%..120%U _{din}], I: FS [1..3000A], cosφ=0.5) – STD Clamp			
Current Range [mV]	Range [VAr] [Varh]	Resolution [VAr] [Varh]	Accuracy
20 ÷ 100	0.000 x FS ÷ 9.999 x FS 10.00 x FS ÷ 99.99 x FS 100.0 x FS ÷ 999.9 x FS	0.001 x FS 0.01 x FS 0.1 x FS	±(2.0%rdg)
100 ÷ 1000	1.000k x FS ÷ 9.999k x FS 10.00k x FS ÷ 99.99k x FS 100.0k x FS ÷ 999.9k x FS 1000k x FS ÷ 9999k x FS	0.001k x FS 0.01k x FS 0.1k x FS 1k x FS	±(1.5%rdg)

FS = Full scale clamp; Fundamental frequency: 42.5 ÷ 69Hz, Sinusoidal voltages and currents

Reactive Power/Energy AC – (V:[80%..120%U _{din}], I: FS = 300A, cosφ=0.5) – FLEX Clamp			
Current Range [mV]	Range [VAr] [Varh]	Resolution [VAr] [Varh]	Accuracy
0.510 ÷ 2.55	0.0 ÷ 999.5	0.5	±(2.0%rdg)
2.55 ÷ 25.5	1.000k ÷ 9.999k 10.00k ÷ 99.99k 100.0k ÷ 999.9k 1000k ÷ 9999k	0.005k 0.05k 0.5k 5k	±(1.5%rdg)

Fundamental frequency: 42.5 ÷ 69Hz, Sinusoidal voltages and currents

Reactive Power/Energy AC – (V:[80%..120%U _{din}], I: FS = 3000A, cosφ=0.5) – FLEX Clamp			
Current Range [mV]	Range [VAr] [Varh]	Resolution [VAr] [Varh]	Accuracy
5.10 ÷ 25.5	0 ÷ 9999	5	±(2.0%rdg)
25.5 ÷ 255	10.00k ÷ 99.99k 100.0k ÷ 999.9k 1000k ÷ 9999k 1.000M ÷ 9.999M	0.05k 0.5k 5k 0.005M	±(1.5%rdg)

Fundamental frequency: 42.5 ÷ 69Hz, Sinusoidal voltages and currents

Reactive Power/Energy AC – (V:[80%..120%U _{din}], I: FS = 6000A, cosφ=0.5) – FLEX Clamp			
Current Range [mV]	Range [VAr] [Varh]	Resolution [VAr] [Varh]	Accuracy
10.2 ÷ 51.0	0 .. 9999	5	±(2.0%rdg)
51.0 ÷ 510	10.00k .. 99.99k 100.0k .. 999.9k 1000k .. 9999k 1.000M .. 9.999M	0.05k 0.5k 5k 0.005M	±(1.5%rdg)

Fundamental frequency: 42.5 ÷ 69Hz, Sinusoidal voltages and currents



Reactive Power/Energy AC – (V: [80%..120%U_{din}], I: FS = 10000A], cosφ=0.5) – FLEX Clamp

Current Range [mV]	Range [VAr] [Varh]	Resolution [VAr] [Varh]	Accuracy
10.2 ÷ 51.0	0 .. 9999	5	±(2.0%rdg)
51.0 ÷ 850	10.00k .. 99.99k 100.0k .. 999.9k 1000k .. 9999k 1.000M .. 9.999M	0.05k 0.5k 5k 0.005M	±(1.5%rdg)

Fundamental frequency: 42.5 ÷ 69Hz, Sinusoidal voltages and currents

Power Factor and cosφ – (V: [80%..120%U_{din}], I: >10% FS clamp

Range	Resolution	Accuracy
0.20 ÷ 1.00	0.01	±0.04

Fundamental frequency: 42.5 ÷ 69Hz, Sinusoidal voltages and currents



3. GENERAL SPECIFICATIONS

FINSTRUMENT FUNCTIONS

Periodic analysis (TRMs values):	Voltages (5 channels), Currents (4 channels), Active, Reactive, Apparent Powers, Power factors and $\cos\phi$ (4 quadrants), Active and Reactive Energies (4 quadrants), Voltage dissymmetry, Flicker, Peak values
Harmonic analysis:	Voltage Histograms, Currents (amplitude/phase), Powers (amplitude), Inter-harmonics, K Factor up to the 63rd order, THD%, THI%, Incoming and outgoing harmonics
Signal waveforms:	Voltages, Currents
Vectorial diagrams:	Voltages, Currents
Voltage anomalies:	Dips, peaks, interruptions (max 2000 events)
Fast voltage transients:	up to 8kV (max 2000 events)
Inrush currents: max	2000 events

RECORDINGS

Number of measurable parameters:	3180 + voltage/current events
Integration Period (IP):	0.2s, 3s, 10s, 15s, 18s, 30s, 1min, 5min, 10min, 15min, 30min, 60min, 120min
Frequency integration period:	1s ÷ 30s
Harmonic integration period:	0.2s, 3s, 6s, 10s, 12s, 15s, 18s, 30s, 1min, 5min, 10min, 15min, 30min, 60min, 120min
Maximum recording size:	512MB (all parameters)
Measuring autonomy:	approx. 408 days (IP= 10min), approx. 3 hours (IP= 0.2s)

DISPLAY

Characteristics:	3.5" (320x240pxl) graphic display, TFT, colors, backlit resistive touch screen
Brightness adjustment:	programmable

POWER SUPPLY

Internal power supply:	6x 1.5V alkaline batteries - type AA LR06 or 6x1.2V rechargeable NiMH batteries - type AA LR06
Charging time:	approx. 6 hours
Charger power pack:	100-415VAC/15VDC, 8W, 50/60Hz
Auto Power Off:	after 5 minutes of non-use (without power pack)

MEMORY AND PC INTERFACES

Memory for data storage:	External memory card max 32GB (only use HC Class U1)
Interface with PC:	USB-C, WiFi, Ethernet (RJ45 input)

MECHANICAL CHARACTERISTICS

Dimensions (L x P x H):	235 x 165 x 75mm ; (9 x 6 x 3in)
Weight (battery included):	1.2 kg ; (2.5lb)
Mechanical protection:	IP40

ENVIRONMENTAL CONDITIONS FOR USE

Reference temperature:	23°C ± 5°C ; (73°F ± 41°F)
Working temperature:	-10°C ÷ 50°C ; (14°F ÷ 122°F)
Relative humidity:	10°C ÷ 30°C → <95%RH (non-condensing) 30°C ÷ 40°C → <75%RH (non-condensing) 40°C ÷ 50°C → <45%RH (non-condensing)
Storage temperature:	-20°C ÷ 60°C ; (-4°F ÷ 140°F)
Storage humidity:	<80%RH
Max. altitude of use:	2000m ; (6562ft)



REFERENCE GUIDELINES

Instrument safety:	IEC/EN61010-1, IEC/EN61010-2-030, IEC/EN61010-2-033
EMC:	IEC/EN61326-1
Technical literature:	IEC/EN61187
Safety of measuring accessories:	IEC/EN61010-031, IEC/EN61010-2-032
Insulation:	double insulation
Pollution grade:	2
Measurement category:	CAT IV 600V, CAT III 1000V to Earth max 1000V between inputs
Network quality	IEC/EN61000-4-30 – Class S
Network voltage quality:	EN50160
Flicker:	IEC/EN61000-4-15
Harmonics, Inter-harmonics, Unbalance:	IEC/EN61000-4-7

This instrument complies with the requirements of the Low Voltage Directive 2014/35/EU (LVD) and the EMC Directive 2014/30/EU and RED Directive 2014/53/EU

This instrument complies with the requirements of European Directive 2011/65/EU (RoHS) and European Directive 2012/19/EU (WEEE)



Diensten van EURO-INDEX

EURO-INDEX is fabrikant, importeur en distributeur van diverse A-merken op het gebied van test- en meetinstrumenten. Daarnaast leveren wij een groot aantal diensten om het gebruik van deze instrumenten in uw bedrijfsvoering te optimaliseren. Dit omvat uiteraard onderhoud, reparatie en kalibratie van de instrumenten, maar ook kennisdeling via EURO-INDEX Academy en verhuur van instrumenten.

Geautoriseerd Service Centrum

EURO-INDEX b.v. is van alle vertegenwoordigde merken een Geautoriseerd Service Centrum. Dit betekent dat uw instrumenten worden behandeld door technici die zijn opgeleid door de fabrikant en beschikken over de juiste gereedschappen en software. Er worden uitsluitend originele onderdelen toegepast en de garantie van uw instrument, evenals de certificering (ATEX, EN50379, etc.) blijven intact.

Kalibratielaboratorium

Het laboratorium in Nederland beschikt over een RvA accreditatie naar EN-ISO/IEC 17025. Deze accreditatie geldt voor grootheden, zoals gespecificeerd in de scope bij accreditatienummer K105. RvA kalibratiecertificaten zijn internationaal geaccepteerd en is gelijkwaardig aan BELAC.



Mobiele Service

Naast de vaste kalibratielaboratoria in Zaventem en Capelle aan den IJssel beschikken wij ook over een laboratorium op wielen met de naam "Mobiele Service". Dit biedt vertrouwde service en kwaliteit, bij u voor de deur!

KWS®

KWS® is een uniek servicesysteem voor uw meetinstrumenten met periodiek onderhoud en kalibratie tegen vaste, lage kosten. Via een gratis webportal (mijnkws.be) heeft u altijd en overal beschikking over uw kalibratiecertificaten.

Verhuur van meetinstrumenten

- Uitgebreid assortiment
- Nauwkeurigheid aantoonbaar door actueel kalibratiecertificaat
- Deskundig advies
- Complete levering inclusief accessoires

EURO-INDEX Academy

- Trainingen, seminars en workshops
- Demonstratie- en instructievideo's
- Application notes



Servicebalie



Onderhoud, reparatie en kalibratie



Trainingen en seminars



Mobiele Service

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