

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 [μV]	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 [μV]	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)



Services d'EURO-INDEX

EURO-INDEX est un fabricant, importateur et distributeur de diverses marques A dans le domaine des instruments de test et de mesure. Nous fournissons également une large gamme de services pour optimiser l'utilisation de ces instruments dans vos activités. Ces services comprennent naturellement l'entretien, la réparation et l'étalonnage des instruments, mais nous proposons aussi une assistance sous forme de formation via notre EURO-INDEX Academy et la location d'instruments.

Centre de Service Agréé

EURO-INDEX est un Centre de Service Agréé pour toutes les marques représentées. Cela signifie que vos instruments sont pris en charge par des techniciens formés par le fabricant et disposant des outils et logiciels adéquats. Seules des pièces d'origine sont utilisées et la garantie de votre instrument, ainsi que les certifications (ATEX, EN50379, etc.) restent intactes.

Laboratoire de maintenance et de calibrage

Le laboratoire des Pays-Bas est accrédité RvA selon la norme EN-ISO/IEC 17025. Cette accréditation est valable pour différentes grandeurs, telles que spécifiées dans le champ d'application associé au numéro d'accréditation K105. Les certificats de calibrage RvA sont acceptés à l'international et équivalents à ceux de BELAC.



Service Mobile

Outre les laboratoires d'étalonnage fixes de Zaventem et de Capelle aan den IJssel, nous disposons également d'un laboratoire itinérant appelé "Service mobile". Nos services peuvent venir vers vous, en offrant une qualité équivalente.

MQS®

MQS® est une formule d'entretien exclusive comportant un entretien et un calibrage périodiques de vos instruments de mesure à un coût fixe et faible. Via un portail Web gratuit (monmq.be), vous avez toujours accès à vos certificats de calibrage.

Location d'instruments de mesure

- Vaste assortiment
- Précision démontrable par le certificat d'étalonnage actuel
- Conseils avisés
- Les instruments sont livrés avec leurs accessoires

EURO-INDEX Academy

- Formations et séminaires
- Vidéos de démonstration et d'instruction
- Notes d'application



Comptoir de service



Entretien, réparation et calibrage



Formations et séminaires



Service Mobile

Sous réserve de modifications EURO-INDEX® FR 23001



BELGIQUE
Chaussée de Louvain 607
1930 Zaventem
T: 02 - 757 92 44
F: 02 - 757 92 64
sales@euro-index.be
www.euro-index.be

PAYS-BAS
Rivium 2e straat 12
2909 LG Capelle a/d IJssel
T: +31 - (0)10 - 2 888 000
F: +31 - (0)10 - 2 888 010
verkoop@euro-index.nl
www.euro-index.nl

