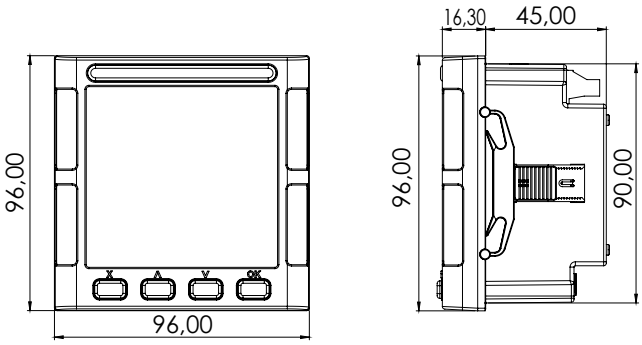
Electronic Products

ECRAS 3-4 Multimeter Series

The new ECRAS series multimeters with ghost screen technology are designed to measure current, voltage, frequency, and power parameters in 3-phase electrical systems. The new ECRAS series, which offers 45 mm depth and vertical cable connection, is most suitable for use in narrow panels.

- Ghost Screen Technology with 4.2 inches Width
- IP54 protection class for front panel
- 45 mm Depth
- x/1 and x/5 Current Transformer Support
- Current connection terminals with 4 mm² cross-section
- High Measurement Accuracy
- RS485 (Modbus RTU) Option
- 2 SPST Relay Output Options
- Free user interface software

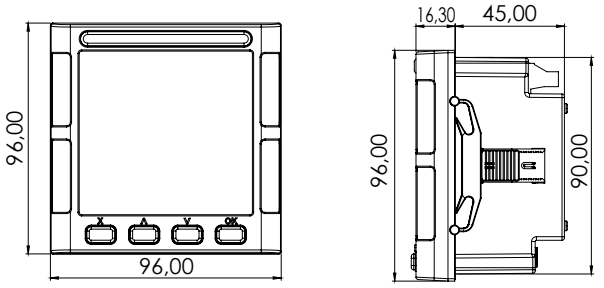


Product Name	Order No	Definition	Voltage, Current and Frequency	Power (P, Q, S) and Power Factor (PF)	Total Harmonic Distortion (THD)	Demand	Alarm Setting	Relay Outputs (2 pcs)	RS485 (Modbus RTU)	85-300 V DC/DC	X/1 & X/5	Panel Mount	Ghost Screen
ECRAS 300	606 500	Electronic Multimeter	√							√	√	√	√
ECRAS 301	606 501	Electronic Multimeter	√				√	√		√	√	√	√
ECRAS 400	606 502	Electronic Multimeter	√	√						√	√	√	√
ECRAS 400R	606 503	Electronic Multimeter	√	√			√		√	√	√	√	√
ECRAS 411R	606 504	Electronic Multimeter	√	√	√	√	√	√	√	√	√	√	√

KLEA 4 Series Energy Analyzer

The new KLEA 4 series energy analyzers are devices designed to analyze 3-phase electrical systems. The new KLEA 4 series, which offers 45 mm depth and vertical cable connection, is most suitable for use in narrow panels. It can also be used in remote monitoring projects thanks to the optional RS485 (Modbus RTU) interface on the devices. Thanks to their optional digital outputs, pulse outputs can be created according to the measured energy values. Digital inputs can be used as pulse counters or tariff activation.

- 4.2 inch Ghost Screen
- IP54 protection class
- 45 mm Depth
- x/1 and x/5 Current Transformer Support
- Current connection terminals with 4 mm² cross-section
- High Measurement Accuracy
- RS485 (Modbus RTU) Option
- 2 SPST Relay Output Options
- 2 Digital Input/Output Options
- Free user interface software



Product Name	Order No	V, C, F	P, Q, S, PF	Min / Max Data Log.	4Q. Energy Measur.	2Q Reactive Energy Monit.	THD	Individual Harmonics (up to 31st)	Demand	On Hour, Run Hour, Pow. Interruption Count.	Alarm Setting	Ghost Screen	Relay Outputs (2 pcs)	Digital Outputs (2 Qty)	Digital Inputs (2 Qty)	Tariff	RS485 (Modbus RTU)	85-300 V DC/DC	X/1& X/5	Panel Mount
KLEA 400R	606700	√	√	√	√	√			√	√	√	√				1	√	√	√	√
KLEA 405	606705	√	√	√	√	√			√	√		√		√	√	2		√	√	√
KLEA 405R	606701	√	√	√	√	√			√	√	√	√		√	√	2	√	√	√	√
KLEA 406R	606702	√	√	√	√	√			√	√	√	√	√	√	√	2	√	√	√	√
KLEA 411R	606706	√	√	√	√	√	√	√	√	√	√	√	√			1	√	√	√	√

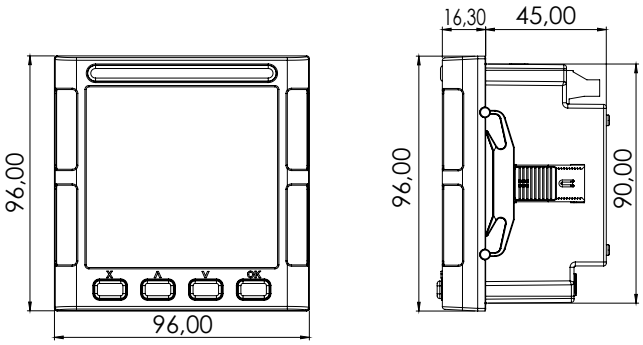
Electronic Products

KLEA 5 Series Energy Analyzer

The new KLEA 5 series energy analyzers are devices designed to analyze 3-phase electrical systems. The new KLEA 5 series, which offers 45 mm depth and vertical cable connection, is most suitable for use in narrow panels. It can also be used in remote monitoring projects thanks to the optional Ethernet (Modbus TCP) port in addition to the RS485 (Modbus RTU) interface on the devices. Thanks to their optional digital outputs, pulse outputs can be created according to the measured energy values. Digital inputs can be used as pulse counters or tariff activation.

With the model-based “Gateway Feature”, the data of other serial devices connected to KLEA can be transferred to the related platforms without the need for an external gateway.

- 4.2 inch LCD Screen
- IP54 protection class
- 45 mm Depth
- X/1 and X/5 Current Transformer Support
- Current connection terminals with 4mm² cross-section
- High Measurement Accuracy
- RS485 (Modbus RTU) Option
- Ethernet (Modbus TCP) Option
- 2 SPST Relay Output Options
- 2 Digital Input/Output Options
- Free user interface software



Product Name	Order No	V, C, F	P, Q, S, PF	Min / Max Data Logging	4Q. Energy Measur.	4Q Reactive Energy Monit.	THD	Individual Harmonics (up to 31st)	Demand	On Hour, Run Hour, Power Interruption Counters	Alarm Setting	LCD Screen	RO (2 pcs)	DO (2 pcs)	DI (2 pcs)	Tariff	RS485 (Modbus RTU)	Ethernet (Modbus TCP)	Gateway Feature	85-300 V DC/ DC	X/1 & X/5	Panel Mount
KLEA 500R	606703	√	√	√	√	√	√	√	√	√	√	√				1	√			√	√	√
KLEA 506R	606704	√	√	√	√	√	√	√	√	√	√	√	√	√	√	3	√			√	√	√
KLEA 500RE	606707	√	√	√	√	√	√	√	√	√	√	√				1	√	√		√	√	√
KLEA 506RE	606708	√	√	√	√	√	√	√	√	√	√	√	√	√	√	3	√	√		√	√	√
KLEA 516RE	606709	√	√	√	√	√	√	√	√	√	√	√	√	√	√	3	√	√	√	√	√	√

Electronic Products

KLEA 1-2-3 Series Energy Analyzer





Type			KLEA 320P	KLEA 370P	KLEA 322P	KLEA 324P	KLEA 320P-D
Definiton			3Ø Energy Analyzer	3Ø Energy Analyzer	3Ø Energy Analyzer	3Ø Energy Analyzer	3Ø Energy Analyzer
Order Number			606100	606101	606102	606103	606130
General	Seven Segment Display		-	-	-	-	-
	LCD		Available	Available	Available	Available	Available
	Language Support		Turkish, English, Russian	Turkish, English, Russian	Turkish, English, Russian	Turkish, English, Russian	Turkish, English, Russian
	Battery		Available	Available	Available	Available	Available
	Real Time Clock		Available	Available	Available	Available	Available
	Password Protection		Available	Available	Available	Available	Available
	Current Transformer Ratio		1-5000	1-5000	1-5000	1-5000	1-5000
	Voltage Transformer Ratio		1-5000	1-5000	1-5000	1-5000	1-5000
	Demand Period		1-60 minutes adjustable	1-60 minutes adjustable	1-60 minutes adjustable	1-60 minutes adjustable	1-60 minutes adjustable
	Connection Type		3P4W, 3P3W, Aron	3P4W, 3P3W, Aron	3P4W, 3P3W, Aron	3P4W, 3P3W, Aron	3P4W, 3P3W, Aron
	Measurement in Quadrants		4	4	4	4	4
	Number of Measurement in a period		512	512	512	512	512
	LCD/Display Refresh Period		1 sec	1 sec	1 sec	1 sec	1 sec
	Networks		TT, TN, IT	TT, TN, IT	TT, TN, IT	TT, TN, IT	TT, TN, IT
	Phasor Diagram		Available	Available	Available	Available	Available
	Signal Waveforms		Available	Available	Available	Available	Available
	Min/Max/Demand Values		Available	Available	Available	Available	Available
Energy Measurement	Number of Tariffs		2	2	2	2	2
	Multi Sub-Tariffs (Peak, Day and Off-Peak)		Available	Available	Available	Available	Available
	1Ø Phase Energy Meters		Available	Available	Available	Available	Available
	3Ø Phase Energy Meters		Available	Available	Available	Available	Available
	4-Quadrant Reactive Energy Meters		-	-	-	-	Available
Current Measurement Input	Measurement Range		10mA-6A AC	10mA-6A AC	10mA-6A AC	10mA-6A AC	10mA-6A AC
	Overvoltage Category		300 V Cat II	300 V Cat II	300 V Cat II	300 V Cat II	300 V Cat II
	Measurement Surge Voltage		2 kV	2 kV	2 kV	2 kV	2 kV
	Power Consumption		<0.2 VA	<0.2 VA	<0.2 VA	<0.2 VA	<0.2 VA
	intermittent overload		100A for 1 sec	100A for 1 sec	100A for 1 sec	100A for 1 sec	100A for 1 sec
	Sampling Freq.between 45-65 Hz		25,6 kHz	25,6 kHz	25,6 kHz	25,6 kHz	25,6 kHz
Voltage Measurement Input	Overvoltage Category		300 V Cat III	300 V Cat III	300 V Cat III	300 V Cat III	300 V Cat III
	Measured Range L-N		1-300 Vrms	1-300 Vrms	1-300 Vrms	1-300 Vrms	1-300 Vrms
	Measured Range L-L		2-500 Vrms	2-500 Vrms	2-500 Vrms	2-500 Vrms	2-500 Vrms
	Measured Frequency Range		45-65 Hz	45-65 Hz	45-65 Hz	45-65 Hz	45-65 Hz
	Power Consumption		<0.1 VA	<0.1 VA	<0.1 VA	<0.1 VA	<0.1 VA
	Sampling Freq.between 45-65 Hz		25,6 kHz	25,6 kHz	25,6 kHz	25,6 kHz	25,6 kHz
Power Quality Measurements	Harmonics for current and voltage phases		Upto 51st	Upto 51st	Upto 51st	Upto 51st	Upto 51st
	THD-Voltage in %		Available	Available	Available	Available	Available
	THD-Current in %		Available	Available	Available	Available	Available
Other Measurements	Run Hour (Operating time for load in hours)		Available	Available	Available	Available	Available
	On Hour (Operating time for meter in hours)		Available	Available	Available	Available	Available
	Int Counter (Number of power interruptions)		Available	Available	Available	Available	Available
Measurement Accuracy	According to IEC 61557-12	Total Active Power	Class 0.2	Class 0.2	Class 0.2	Class 0.2	Class 0.2
		Total Reactive Power	Class 1	Class 1	Class 1	Class 1	Class 1
		Total Apparent Power	Class 0.2	Class 0.2	Class 0.2	Class 0.2	Class 0.2
		Total Active Energy	Class 0.5	Class 0.5	Class 0.5	Class 0.5	Class 0.5
		Total Reactive Energy	Class 2	Class 2	Class 2	Class 2	Class 2
		Frequency	Class 0.05	Class 0.05	Class 0.05	Class 0.05	Class 0.05
		Current	Class 0.2	Class 0.2	Class 0.2	Class 0.2	Class 0.2
		Neutral Current (calculated)	Class 0.5	Class 0.5	Class 0.5	Class 0.5	Class 0.5
		Voltage	Class 0.2	Class 0.2	Class 0.2	Class 0.2	Class 0.2
		Power factor	Class 0.5	Class 0.5	Class 0.5	Class 0.5	Class 0.5
		THDV, THDI	Class 1	Class 1	Class 1	Class 1	Class 1
	According to IEC 62053-22	Total Active Energy	Class 0.2S	Class 0.2S	Class 0.2S	Class 0.2S	Class 0.2S
	Accoding to IEC 62053-23	Total Reactive Energy	Class 2	Class 2	Class 2	Class 2	Class 2

Electronic Products

KLEA 1-2-3 Series Energy Analyzer







KLEA 370P-D	KLEA 220P	KLEA 110P	KLEA-370P-VSM	KLEA-320P-DC	KLEA-220P-DC	KLEA 220P-B
3Ø Energy Analyzer	3Ø Energy Analyzer	3Ø Energy Analyzer	3Ø Energy Analyzer	3Ø Energy Analyzer	3Ø Energy Analyzer	3Ø Energy Analyzer
606131	606160	606180	606121	606150	606190	606163
-	-	Available	-	-	-	-
Available	Available	-	Available	Available	Available	Available
Turkish, English, Russian	-	-	Turkish, English, Russian	Turkish, English, Russian	-	-
Available	-	-	Available	Available	-	-
Available	-	-	Available	Available	-	-
Available	Available	Available	Available	Available	Available	Available
1-5000	1-5000	1-5000	1 - 5.000	1 - 5.000	1 - 5.000	1-5000
1-5000	1-5000	1-5000	1 - 5.000	1 - 5.000	1 - 5.000	1-5000
1-60 minutes adjustable	1-60 minutes adjustable	1-60 minutes adjustable	1-60 minutes adjustable	1-60 minutes adjustable	1-60 minutes adjustable	1-60 minutes adjustable
3P4W, 3P3W, Aron	3P4W, 3P3W	3P4W, 3P3W	3P4W, 3P3W, Aron	3P4W, 3P3W, Aron	3P4W, 3P3W	3P4W, 3P3W
4	4	4	4	4	4	4
512	256	256	512	512	256	256
1 sec	1 sec	1 sec	1 sec	1 sec	1 sec	1 sec
TT, TN, IT	TT, TN, IT	TT, TN, IT	TT, TN, IT	TT, TN, IT	TT, TN, IT	TT, TN, IT
Available	-	-	Available	Available	-	-
Available	-	-	Available	Available	-	-
Available	Available	Available	Available	Available	Available	Available
2	2	2	2 + 7 different energy meters	2	2	1
Available	-	-	Available	Available	-	-
Available	-	-	Available	Available	-	-
Available	Available	Available	Available	Available	Available	Available
Available	-	-	-	-	-	-
10mA-6A AC	10mA-6A AC	10mA-6A AC	10mA-6A AC	10mA-6A AC	10mA-6A AC	10mA-6A AC
300 V Cat II	300 V Cat II	300 V Cat II	300 V Cat II	300 V Cat II	300 V Cat II	300 V Cat II
2 kV	2 kV	2 kV	2 kV	2 kV	2 kV	2 kV
<0.2 VA	<0.2 VA	<0.2 VA	<0.2 VA	<0.2 VA	<0.2 VA	<0.2 VA
100A for 1 sec	100A for 1 sec	100A for 1 sec	100A for 1 sec	100A for 1 sec	100A for 1 sec	100A for 1 sec
25,6 kHz	12,8 kHz	12,8 kHz	25,6 kHz	25,6 kHz	12,8 kHz	12,8 kHz
300 V Cat III	300 V Cat III	300 V Cat III	300 V Cat III	300 V Cat III	300 V Cat III	300 V Cat III
1-300 Vrms	1-300 Vrms	1-300 Vrms	1-300 Vrms	1-300 Vrms	1-300 Vrms	1-300 Vrms
2-500 Vrms	2-500 Vrms	2-500 Vrms	2-500 Vrms	2-500 Vrms	2-500 Vrms	2-500 Vrms
45-65 Hz	45-65 Hz	45-65 Hz	45...65 Hz	45...65 Hz	45...65 Hz	45-65 Hz
<0.1 VA	<0.1 VA	<0.1 VA	<0.1 VA	<0.1 VA	<0.1 VA	<0.1 VA
25,6 kHz	12,8 kHz	12,8 kHz	25,6 kHz	25,6 kHz	12,8 kHz	12,8 kHz
Upto 51st	Upto 31st	Upto 31st	Upto 51st	Upto 51st	Upto 31st	Upto 31st
Available	Available	Available	Available	Available	Available	Available
Available	Available	Available	Available	Available	Available	Available
Available	Available	Available	Available	Available	Available	Available
Available	Available	Available	Available	Available	Available	Available
Available	Available	Available	Available	Available	Available	Available
Class 0.2	Class 0.5	Class 0.5	Class 0.2	Class 0.2	Class 0.5	Class 0.5
Class 1	Class 1	Class 1	Class 1	Class 1	Class 1	Class 1
Class 0.2	Class 0.5	Class 0.5	Class 0.2	Class 0.2	Class 0.5	Class 0.5
Class 0.5	Class 0.5	Class 0.5	Class 0.5	Class 0.5	Class 0.5	Class 0.5
Class 2	Class 2	Class 2	Class 2	Class 2	Class 2	Class 2
Class 0.05	Class 0.1	Class 0.1	Class 0.05	Class 0.05	Class 0.1	Class 0.1
Class 0.2	Class 0.5	Class 0.5	Class 0.2	Class 0.2	Class 0.5	Class 0.5
Class 0.5	Class 0.5	Class 0.5	Class 0.5	Class 0.5	Class 0.5	Class 0.5
Class 0.2	Class 0.2	Class 0.2	Class 0.2	Class 0.2	Class 0.2	Class 0.2
Class 0.5	Class 0.5	Class 0.5	Class 0.5	Class 0.5	Class 0.5	Class 0.5
Class 1	Class 1	Class 1	Class 1	Class 1	Class 1	Class 1
Class 0.2S	Class 0.5S	Class 0.5S	Class 0.2S	Class 0.2S	Class 0.5S	Class 0.5S
Class 2	Class 2	Class 2	Class 2	Class 2	Class 2	Class 2

KLEA 1-2-3 Series Energy Analyzer

Type			KLEA 320P	KLEA 370P	KLEA 322P	KLEA 324P	KLEA 320P-D
Inputs and Outputs	Alarm Relay Outputs	Number of outputs	2 pcs.	2 pcs.	2 pcs.	2 pcs.	2 pcs.
		Type	NO (SPST)	NO (SPST)	NO (SPST)	NO (SPST)	NO (SPST)
		Max. Switching Current	5 A	5 A	5 A	5 A	5 A
		Max. Switching Voltage	250 V AC	250 V AC	250 V AC	250 V AC	250 V AC
		Max. Switching Power	1250 VA	1250 VA	1250 VA	1250 VA	1250 VA
Inputs and Outputs	Digital Inputs	Number of inputs	2 pcs.	7 pcs.	2 pcs.	2 pcs.	2 pcs.
		Frequency	100 Hz, 10 ms	100 Hz, 10 ms	100 Hz, 10 ms	100 Hz, 10 ms	100 Hz, 10 ms
		Input Present or Not	Dry Contact	Dry Contact	Dry Contact	Dry Contact	Dry Contact
		Isolation Level	5000 Vrms	5000 Vrms	5000 Vrms	5000 Vrms	5000 Vrms
	Digital Outputs	Number of outputs	2 pcs.	7 pcs.	2 pcs.	2 pcs.	2 pcs.
		Output type	Transistor	Transistor	Transistor	Transistor	Transistor
		Switching Voltage Range	5-30 VDC	5-30 VDC	5-30 VDC	5-30 VDC	5-30 VDC
		Frequency	20 Hz, 50 ms	20 Hz, 50 ms	20 Hz, 50 ms	20 Hz, 50 ms	20 Hz, 50 ms
		Isolation Level	5000 Vrms	5000 Vrms	5000 Vrms	5000 Vrms	5000 Vrms
	Analog Outputs	Range of Outputs 0-5 V, 0-10 V, -5-5 V, -10-10V, 0-20 mA, 4-20 mA	-	-	2	4	-
		Isolation	-	-	Available	Available	-
Supply	Voltage	AC	85-300V	85-300V	85-300V	85-300V	85-300V
		DC	85-300V	85-300V	85-300V	85-300V	85-300V
	Consumption	AC	< 3VA	< 3VA	< 3VA	< 3VA	< 3VA
		DC	<2.5W	<2.5W	<2.5W	<2.5W	<2.5W
	Frequency		45-65Hz	45-65Hz	45-65Hz	45-65Hz	45-65Hz
Data Logging with timestamp	Min/max/avg Values	Hourly records	1920 hours x 68 different paramaters	1920 hours x 68 different paramaters	1920 hours x 68 different paramaters	1920 hours x 68 different paramaters	1920 hours x 68 different paramaters
		Daily records	240 days x 68 different paramaters	240 days x 68 different paramaters	240 days x 68 different paramaters	240 days x 68 different paramaters	240 days x 68 different paramaters
		Monthly records	36 months x 68 different parameters	36 months x 68 different parameters	36 months x 68 different parameters	36 months x 68 different parameters	36 months x 68 different parameters
	Demand		4 months x 16 different parameters	4 months x 16 different parameters	4 months x 16 different parameters	4 months x 16 different parameters	4 months x 16 different parameters
	Alarm records		50	50	50	50	50
Communication	Protocol		Modbus RTU	Modbus RTU	Modbus RTU	Modbus RTU	Modbus RTU
	Baud rate		2400-115200 bps adjustable	2400-115200 bps adjustable	2400-115200 bps adjustable	2400-115200 bps adjustable	2400-115200 bps adjustable
	Parity number		None	None	None	None	None
	Stop bit		1	1	1	1	1
	Address		1-247	1-247	1-247	1-247	1-247
	Isolation		2750V RMS	2750V RMS	2750V RMS	2750V RMS	2750V RMS
Mechanical Properties	Weight(g)		404	428	428	428	404
	Protection Class		Front IP40 / Rear IP20 (IP66 with accessory)	Front IP40 / Rear IP20 (IP66 with accessory)	Front IP40 / Rear IP20 (IP66 with accessory)	Front IP40 / Rear IP20 (IP66 with accessory)	Front IP40 / Rear IP20 (IP66 with accessory)
	Assembly Type		Panel Mount	Panel Mount	Panel Mount	Panel Mount	Panel Mount
Cable Cross Sections	Supply, Voltage, Current, Relay Outputs	Stranded	2,5 mm² - 14AWG	2,5 mm² - 14AWG	2,5 mm² - 14AWG	2,5 mm² - 14AWG	2,5 mm² - 14AWG
		Solid	4mm²-12 AWG, 2x1.5 mm²-2x16 AWG	4mm²-12 AWG, 2x1.5 mm²-2x16 AWG	4mm²-12 AWG, 2x1.5 mm²-2x16 AWG	4mm²-12 AWG, 2x1.5 mm²-2x16 AWG	4mm²-12 AWG, 2x1.5 mm²-2x16 AWG
	Digital I/O, RS 485, Analog Output	Stranded	1,5 mm²-16AWG	1,5 mm²-16AWG	1,5 mm²-16AWG	1,5 mm²-16AWG	1,5 mm²-16AWG
		Solid	1.5 mm²-16 AWG, 2x0.75 mm²-2x18 AWG	1.5 mm²-16 AWG, 2x0.75 mm²-2x18 AWG	1.5 mm²-16 AWG, 2x0.75 mm²-2x18 AWG	1.5 mm²-16 AWG, 2x0.75 mm²-2x18 AWG	1.5 mm²-16 AWG, 2x0.75 mm²-2x18 AWG
Ambient Conditions	Operating Temperature		-20 to +70 °C	-20 to +70 °C	-20 to +70 °C	-20 to +70 °C	-20 to +70 °C
	Storage Temperature		-30 to +80 °C	-30 to +80 °C	-30 to +80 °C	-30 to +80 °C	-30 to +80 °C
	Relative Humidity (no condensation)		Max.95%	Max.95%	Max.95%	Max.95%	Max.95%
Accessories		Type	IP66 Silicone Cover (96x96mm)	IP66 Silicone Cover (96x96mm)	IP66 Silicone Cover (96x96mm)	IP66 Silicone Cover (96x96mm)	IP66 Silicone Cover (96x96mm)
		Definition	SILICONE COVER	SILICONE COVER	SILICONE COVER	SILICONE COVER	SILICONE COVER
		Order Number	250 001	250 001	250 001	250 001	250 001
		Packaging unit	2	2	2	2	2

KLEA 1-2-3 Series Energy Analyzer

KLEA 370P-D	KLEA 220P	KLEA 110P	KLEA-370P-VSM	KLEA-320P-DC	KLEA-220P-DC	KLEA 220P-B
2 pcs.	2 pcs.	2 pcs.	2 pcs.	2 pcs.	2 pcs.	-
NO (SPST)	NO (SPST)	NO (SPST)	NO (SPST)	NO (SPST)	NO (SPST)	-
5 A	10 A AC / 5 A DC	10 A AC / 5 A DC	5 A	5 A	10 A AC / 5 A DC	-
250 V AC	250 V AC / 30 V DC	250 V AC / 30 V DC	250 V AC	250 V AC	250 V AC / 30 V DC	-
1250 VA	1250 VA / 150 W	1250 VA / 150 W	1250 VA	1250 VA	1250 VA / 150 W	-
2 pcs.	2 pcs.	1 pc.	7 pcs.	2 pcs.	2 pcs.	-
100 Hz, 10 ms	100 Hz, 10 ms	100 Hz, 10 ms	100 Hz, 10 ms	100 Hz, 10 ms	100 Hz, 10 ms	-
Dry Contact	Dry Contact	Dry Contact	Dry Contact	Dry Contact	Dry Contact	-
5000 Vrms	5000 Vrms	5000 Vrms	5000 Vrms	5000 Vrms	5000 Vrms	-
2 pcs.	2 pcs.	2 pcs.	7 pcs.	2 pcs.	2 pcs.	-
Transistor	Transistor	Transistor	Transistor	Transistor	Transistor	-
5-30 VDC	5-30 VDC	5-30 VDC	5-30 VDC	5-30 VDC	5-30 VDC	-
20 Hz, 50 ms	20 Hz, 50 ms	20 Hz, 50 ms	5000 Vrms	5000 Vrms	5000 Vrms	-
5000 Vrms	5000 Vrms	5000 Vrms	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
85-300V	85-300V	85-300V	85-300V	-	-	85-300V
85-300V	85-300V	85-300V	85-300V	18-60VDC	18-60VDC	85-300V
< 3VA	<4.5VA	<6VA	< 3VA	-	-	<4.5VA
<2.5W	<2W	<3W	<2.5W	<2.5W	<2.2W	<2W
45-65Hz	45-65Hz	45-65Hz	45-65Hz	-	-	45-65Hz
1920 hours x 68 different paramaters	-	-	1920 hours x 68 different paramaters	1920 hours x 68 different paramaters	-	-
240 days x 68 different paramaters	-	-	240 days x 68 different paramaters	240 days x 68 different paramaters	-	-
36 months x 68 different parameters	-	-	36 months x 68 different parameters	36 months x 68 different parameters	-	-
4 months x 16 different parameters	-	-	4 months x 16 different parameters	4 months x 16 different parameters	-	-
50	-	-	50	50	-	-
Modbus RTU	Modbus RTU	Modbus RTU	Modbus RTU	Modbus RTU	Modbus RTU	Modbus RTU
2400-115200 bps adjustable	1200-57600 bps adjustable	1200-57600 bps adjustable	2400-115200 bps adjustable	2400-115200 bps adjustable	1200-57600 bps adjustable	1200-57600 bps adjustable
None	Odd, Even, None	Odd, Even, None	Odd,Even,None	Odd,Even,None	Odd,Even,None	Odd, Even, None
1	1	1	1	1	1	1
1-247	1-247	1-247	1-247	1-247	1-247	1-247
2750V RMS	2750V RMS	2750V RMS	2750V RMS	2750V RMS	2750V RMS	2750V RMS
428	378	323	428	428	378	378
Front IP40 / Rear IP20 (IP66 with accessory)	Front IP40 / Rear IP20 (IP66 with accessory)	Front IP40 / Rear IP20 (IP66 with accessory)	Front IP40 / Rear IP20 (IP66 with accessory)	Front IP40 / Rear IP20 (IP66 with accessory)	Front IP40 / Rear IP20 (IP66 with accessory)	Front IP40 / Rear IP20 (IP66 with accessory)
Panel Mount	Panel Mount	Panel Mount	Panel Mount	Panel Mount	Panel Mount	Panel Mount
2,5 mm² - 14AWG	2,5 mm² - 14AWG	2,5 mm² - 14AWG	2.5mm² - 14AWG	2.5mm² - 14AWG	2.5mm² - 14AWG	2,5 mm² - 14AWG
4mm²-12 AWG, 2x1.5 mm²-2x16 AWG	4mm²-12 AWG, 2x1.5 mm²-2x16 AWG	4mm²-12 AWG, 2x1.5 mm²-2x16 AWG	4mm² - 12AWG, 2x1.5mm² - 2x16AWG	4mm² - 12AWG, 2x1.5mm² - 2x16AWG	4mm² - 12AWG, 2x1.5mm² - 2x16AWG	4mm²-12 AWG, 2x1.5 mm²-2x16 AWG
1,5 mm²-16AWG	1,5 mm²-16AWG	1,5 mm²-16AWG	1,5 mm²-16AWG	1,5 mm²-16AWG	1,5 mm²-16AWG	1,5 mm²-16AWG
1.5 mm²-16 AWG, 2x0.75 mm²-2x18 AWG	1.5 mm²-16 AWG, 2x0.75 mm²-2x18 AWG	1.5 mm²-16 AWG, 2x0.75 mm²-2x18 AWG	1.5 mm²-16 AWG, 2x0.75 mm²-2x18 AWG	1.5 mm²-16 AWG, 2x0.75 mm²-2x18 AWG	1.5 mm²-16 AWG, 2x0.75 mm²-2x18 AWG	1.5 mm²-16 AWG, 2x0.75 mm²-2x18 AWG
-20 to +70 °C	-20 to +70 °C	-20 to +70 °C	-20 to +70 °C	-20 to +70 °C	-20 to +70 °C	-20 to +70 °C
-30 to +80 °C	-30 to +80 °C	-30 to +80 °C	-30°C +80°C	-30°C +80°C	-30°C +80°C	-30 to +80 °C
Max.95%	Max.95%	Max.95%	Maks. 95%	Maks. 95%	Maks. 95%	Max.95%
IP66 Silicone Cover (96x96mm)	IP66 Silicone Cover (96x96mm)	IP66 Silicone Cover (96x96mm)	IP66 Silicone Cover (96x96mm)	IP66 Silicone Cover (96x96mm)	IP66 Silicone Cover (96x96mm)	IP66 Silicone Cover (96x96mm)
SILICONE COVER	SILICONE COVER	SILICONE COVER	SILICONE COVER	SILICONE COVER	SILICONE COVER	SILICONE COVER
250 001	250 001	250 001	250 001	250 001	250 001	250 001
2	2	2	2	2	2	2

Electronic Products

ECRAS 1-2 Multimeter Series

Type			ECRAS 100	ECRAS 120	ECRAS 200	ECRAS 220	ECRAS 100 VCF
Defniton			3Ø Multimeter	3Ø Multimeter	3Ø Multimeter	3Ø Multimeter	3Ø Multimeter
Order Number			606210	606211	606212	606213	606218
General	Seven Segment Display		Available	Available	Available	Available	Available
	LCD		-	-	-	-	-
	Language Support		-	-	-	-	-
	Battery		-	-	-	-	-
	Real Time Clock		-	-	-	-	-
	Password Protection		Available	Available	Available	Available	Available
	Current Transformer Ratio		1-5000	1-5000	1-5000	1-5000	1 - 5.000
	Voltage Transformer Ratio		1-5000	1-5000	1-5000	1-5000	1 - 5.000
	Demand Period		1-60 minutes adjustable	1-60 minutes adjustable	1-60 minutes adjustable	1-60 minutes adjustable	-
	Connection Type		3P4W, 3P3W	3P4W, 3P3W	3P4W, 3P3W	3P4W, 3P3W	3P4W, 3P3W
	Measurement in Quadrants		4	4	4	4	-
	Number of Measurement in a period		256	256	256	256	256
	LCD/Display Refresh Period		1 sec	1 sec	1 sec	1 sec	1 sec.
	Networks		TT, TN, IT	TT, TN, IT	TT, TN, IT	TT, TN, IT	TT, TN, IT
	Phasor Diagram		-	-	-	-	-
	Signal Waveforms		-	-	-	-	-
	Min/Max/Demand Values		Available	Available	Available	Available	-
Energy Measurement	Number of Tariffs		1	1	1	1	-
	Multi Sub-Tariffs(Peak, Day and Off-Peak)		-	-	-	-	-
	1Ø Phase Energy Meters		Available	Available	Available	Available	-
	3Ø Phase Energy Meters		Available	Available	Available	Available	Available
	4-Quadrant Reactive Energy Meters		-	-	-	-	-
Current Measurement Input	Measurement Range		10mA-6A AC	10mA-6A AC	10mA-6A AC	10mA-6A AC	10mA-6A AC
	Overvoltage Category		300 V Cat II	300 V Cat II	300 V Cat II	300 V Cat II	300 V Cat II
	Measurement Surge Voltage		2 kV	2 kV	2 kV	2 kV	2 kV
	Power Consumption		<0.2 VA	<0.2 VA	<0.2 VA	<0.2 VA	<0.2 VA
	intermittent overload		100A for 1 sec	100A for 1 sec	100A for 1 sec	100A for 1 sec	100A for 1 sec
	Sampling Freq.between 45-65 Hz		12,8 kHz	12,8 kHz	12,8 kHz	12,8 kHz	12,8 kHz
Voltage Measurement Input	Overvoltage Category		300 V Cat III	300 V Cat III	300 V Cat III	300 V Cat III	300 V Cat III
	Measured Range L-N		1-300 Vrms	1-300 Vrms	1-300 Vrms	1-300 Vrms	1-300 Vrms
	Measured Range L-L		2-500 Vrms	2-500 Vrms	2-500 Vrms	2-500 Vrms	2-500 Vrms
	Measured Frequency Range		45-65 Hz	45-65 Hz	45-65 Hz	45-65 Hz	45-65 Hz
	Power Consumption		<0.1 VA	<0.1 VA	<0.1 VA	<0.1 VA	<0.1 VA
	Sampling Freq.between 45-65 Hz		12,8 kHz	12,8 kHz	12,8 kHz	12,8 kHz	12,8 kHz
Power Quality Measurements	Harmonics for current and voltage phases		Upto 31st	Upto 31st	Upto 31st	Upto 31st	-
	THD-Voltage in %		Available	Available	Available	Available	-
	THD-Current in %		Available	Available	Available	Available	-
Other Measurements	Run Hour (Operating time for load in hours)		Available	Available	Available	Available	-
	On Hour (Operating time for meter in hours)		Available	Available	Available	Available	-
	Int Counter (Number of power interruptions)		Available	Available	Available	Available	-
Measurement Accuracy	According to IEC 61557-12	Total Active Power	Class 0.5	Class 0.5	Class 0.5	Class 0.5	Class 0.5
		Total Reactive Power	Class 1	Class 1	Class 1	Class 1	Class 1
		Total Apparent Power	Class 0.5	Class 0.5	Class 0.5	Class 0.5	Class 0.5
		Total Active Energy	Class 0.5	Class 0.5	Class 0.5	Class 0.5	Class 0.5
		Total Reactive Energy	Class 2	Class 2	Class 2	Class 2	Class 2
		Frequency	Class 0.1	Class 0.1	Class 0.1	Class 0.1	Class 0.1
		Current	Class 0.5	Class 0.5	Class 0.5	Class 0.5	Class 0.5
		Neutral Current (calculated)	Class 0.5	Class 0.5	Class 0.5	Class 0.5	Class 0.5
		Voltage	Class 0.2	Class 0.2	Class 0.2	Class 0.2	Class 0.2
		Power factor	Class 0.5	Class 0.5	Class 0.5	Class 0.5	Class 0.5
		THDV, THDI	Class 1	Class 1	Class 1	Class 1	Class 1
	According to IEC 62053-22	Total Active Energy	Class 0.5S	Class 0.5S	Class 0.5S	Class 0.5S	Class 0.5S
	Accoding to IEC 62053-23	Total Reactive Energy	Class 2	Class 2	Class 2	Class 2	Class 2
Inputs and Outputs	Alarm Relay Outputs	Number of outputs	-	2 pcs.	-	2 pcs.	-
		Type		NO (SPST)		NO (SPST)	-
		Max. Switching Current	-	10 A AC / 5 A DC	-	10 A AC / 5 A DC	-
		Max. Switching Voltage	-	250 V AC / 30 V DC	-	250 V AC / 30 V DC	-
		Max. Switching Power	-	1250 VA / 150 W	-	1250 VA / 150 W	-

Electronic Products

ECRAS 1-2 Multimeter Series

Type			ECRAS 100	ECRAS 120	ECRAS 200	ECRAS 220	ECRAS 100 VCF
Inputs and Outputs	Digital Inputs	Number of inputs	-	-	-	-	-
		Minimum Counting Frequency	-	-	-	-	-
		Input Present or Not	-	-	-	-	-
		Isolation Level	-	-	-	-	-
	Digital Outputs	Number of outputs	-	-	-	-	-
		Type	-	-	-	-	-
		Switching Voltage Range	-	-	-	-	-
		Minimum Switching Frequency	-	-	-	-	-
		Isolation Level	-	-	-	-	-
	Analog Outputs	Number of outputs	-	-	-	-	-
		Range of Outputs 0-5 V, 0-10 V, -5-5 V, -10-10V, 0-20 mA, 4-20 mA	-	-	-	-	-
		Isolation	-	-	-	-	85-300V
Supply	Voltage	AC	85-300V	85-300V	85-300V	85-300V	85-300V
		DC	85-300V	85-300V	85-300V	85-300V	85-300V
	Consumption	AC	<6VA	<6VA	<6VA	<6VA	<6VA
		DC	<3W	<3W	<3W	<3W	<3W
	Frequency		45-65Hz	45-65Hz	45-65Hz	45-65Hz	45-65Hz
Data Logging with timestamp	Min/max/avg Values	Hourly records	-	-	-	-	-
		Daily records	-	-	-	-	-
		Monthly records	-	-	-	-	-
	Demand		-	-	-	-	-
	Alarm records		-	-	-	-	-
Communication	Protocol		-	-	Modbus RTU	Modbus RTU	-
	Baud rate		-	-	1200-57600 bps adjustable	1200-57600 bps adjustable	-
	Parity number		-	-	Odd, Even, None	Odd, Even, None	-
	Stop bit		-	-	1	1	-
	Address		-	-	1-247	1-247	-
	Isolation		-	-	2750V RMS	2750V RMS	-
Mechanical Properties	Weight(g)		272	290	296	316	221
	Protection Class		Front IP40 / Rear IP20 (IP66 with accessory)	Front IP40 / Rear IP20 (IP66 with accessory)	Front IP40 / Rear IP20 (IP66 with accessory)	Front IP40 / Rear IP20 (IP66 with accessory)	Front IP40 / Rear IP20 (IP66 with accessory)
	Assembly Type		Panel Mount	Panel Mount	Panel Mount	Panel Mount	Panel Mount
Cable Cross Sections	Supply, Voltage, Current, Relay Outputs	Stranded:	2,5 mm^2 - 14AWG	2,5 mm^2 - 14AWG	2,5 mm^2 - 14AWG	2,5 mm^2 - 14AWG	2.5mm^2 - 14AWG
		Solid:	4mm^2-12 AWG, 2x1.5 mm^2-2x16 AWG	4mm^2-12 AWG, 2x1.5 mm^2-2x16 AWG	4mm^2-12 AWG, 2x1.5 mm^2-2x16 AWG	4mm^2-12 AWG, 2x1.5 mm^2-2x16 AWG	4mm^2 - 12AWG, 2x1.5mm^2 - 2x16AWG
	Digital I/O, RS 485, Analog Output	Stranded:	-	-	1,5 mm^2-16AWG	1,5 mm^2-16AWG	-
		Solid:	-	-	1.5 mm^2-16 AWG, 2x0.75 mm^2-2x18 AWG	1.5 mm^2-16 AWG, 2x0.75 mm^2-2x18 AWG	-
Ambient Conditions	Operating Temperature		-20 to +70 °C	-20 to +70 °C	-20 to +70 °C	-20 to +70 °C	-20 to +70 °C
	Storage Temperature		-30 to +80 °C	-30 to +80 °C	-30 to +80 °C	-30 to +80 °C	-30°C +80°C
	Relative Humidity (no condensation)		Max.95%	Max.95%	Max.95%	Max.95%	Maks. 95%
Accessories		Type	IP66 Silicone Cover (96x96mm)	IP66 Silicone Cover (96x96mm)	IP66 Silicone Cover (96x96mm)	IP66 Silicone Cover (96x96mm)	IP66 Silicone Cover (96x96mm)
		Definition	SILICONE COVER	SILICONE COVER	SILICONE COVER	SILICONE COVER	SILICONE COVER
		Order Number	250 001	250 001	250 001	250 001	250 001
		Packaging unit	2	2	2	2	2

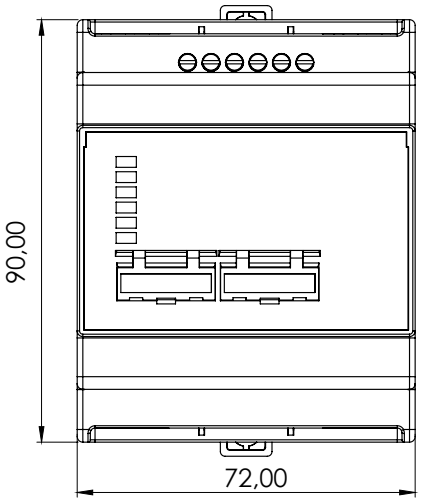
Electronic Products

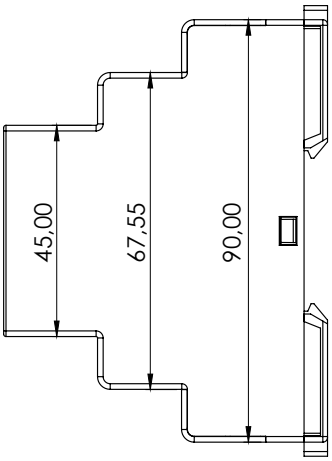
POWYS 4-5-6 Series Energy Analyzers

The POWYS series power analyzers, designed in new enclosures with widths of 72mm and 126mm, are devices intended for analyzing three-phase electrical systems. Offering users options of screenless, 7-segment, and LCDs, the POWYS series provides a competitive solution through its screenless models and free user interface software. Equipped with an RS485 (Modbus RTU) interface, the devices provide data for remote monitoring projects. Communication settings can be easily configured via the dip switches located on the top cover.

With optional digital outputs, pulse signals can be generated based on the measured energy values. The digital inputs can be used as pulse counters or tariff activations. Through alarm relay outputs, alarm management can be established without the need for additional devices.

- Screenless, 7 segment, and LCD options
- Options for enclosure widths of 72 mm and 126 mm
- Support for x/1 and x/5 Current Transformer
- High Measurement Accuracy
- RS485 (Modbus RTU) Option
- 2 SPST Relay Output Options
- 2 Digital Input/Output Options
- Free user interface software





Electronic Products

POWYS 4-5-6 Series Energy Analyzers

Product Name	Order No	V, C, F	P, Q, S, PF	Min / Max Data Logging	4Q. Energy Measur.	4Q Reactive Energy Monit.	THD	Individual Harmonics (up to 31st)	Demand	On Hour, Run Hour, Power Interruption Counters	Alarm Setting	Screenless	7 Segment	LCD Screen	RO (2 pcs)	DO (2 pcs)	DI (2 pcs)	Tariff	RS485 (Modbus RTU)	85-300 V DC/DC	X/1 & X/5	Rail Mount
POWYS 400R	606600	√	√	√	√	√	√	√	√	√	√	√						2	√	√	√	√
POWYS 405R	606601	√	√	√	√	√	√	√	√	√	√	√				√	√	2	√	√	√	√
POWYS 506RD	606602	√	√	√	√	√			√	√	√	√			√	√	√	2	√	√	√	√
POWYS 506RS	606603	√	√	√	√	√			√	√	√		√		√	√	√	2	√	√	√	√
POWYS 606R	606604	√	√	√	√	√	√	√	√	√	√			√	√	√	√	3	√	√	√	√

Electronic Products

POWYS 1-3 Series Energy Analyzers

Type			DNPT	DNPT-B	POWYS 3121	POWYS 3111	POWYS 3101
Definiton			3Ø Power Transducer	3Ø Power Transducer	3Ø Energy Analyzer	3Ø Energy Analyzer	3Ø Energy Analyzer
Order Number			606400	606 401	606305	606304	606303
General	Seven Segment Display		-	-	-	Available	-
	LCD		-	-	Available	-	-
	Language Support		-	-	-	-	-
	Battery		Available	Available	-	-	-
	Real Time Clock		Available	Available	-	-	-
	Password Protection		-	-	Available	Available	Available
	Current Transformer Ratio		1-5000	1-5000	1-5000	1-5000	1-5000
	Voltage Transformer Ratio		1-5000	1-5000	1-5000	1-5000	1-5000
	Demand Period		1-60 minutes adjustable	1-60 minutes adjustable	1-60 minutes adjustable	1-60 minutes adjustable	1-60 minutes adjustable
	Measurement in Quadrants		4	4	4	4	4
	Number of Measurement in a period		512	512	256	256	256
	LCD/Display Refresh Period		-	-	1 sec	1 sec	-
	Network		TT, TN, IT	TT, TN, IT	TT, TN, IT	TT, TN, IT	TT, TN, IT
	Wiring		3P4W, 3P3W, Aron	3P4W, 3P3W, Aron	3P4W, 3P3W	3P4W, 3P3W	3P4W, 3P3W
	Phasor Diagram		-	-	-	-	-
	Signal Waveforms		-	-	-	-	-
	Min/Max/Demand Values		Available	Available	Available	Available	Available
Energy Measurement	Number of Tariffs		2	2	2	2	2
	Multi Sub-Tariffs(Peak, Day and Off-Peak)		Available	Available	-	-	-
	1Ø Phase Energy Meters		-	-	Available	Available	Available
	3Ø Phase Energy Meters		Available	Available	Available	Available	Available
	4 Quadrant Reactive Energy Meters		-	-	-	-	-
Current Measurement Input	Measurement Range		10mA-6A AC	10mA-6A AC	10mA-6A AC	10mA-6A AC	10mA-6A AC
	Overvoltage Category		300 V Cat II	300 V Cat II	300 V Cat II	300 V Cat II	300 V Cat II
	Measurement Surge Voltage		2 kV	2 kV	2 kV	2 kV	2 kV
	Power Consumption		<0.2 VA	<0.2 VA	<0.2 VA	<0.2 VA	<0.2 VA
	intermittent overload		100A for 1 sec	100A for 1 sec	100A for 1 sec	100A for 1 sec	100A for 1 sec
	Sampling Freq.between 45-65 Hz		25.6 kHz	25.6 kHz	12,8 kHz	12,8 kHz	12,8 kHz
Voltage Measurement Input	Overvoltage Category		300 V Cat III	300 V Cat III	300 V Cat III	300 V Cat III	300 V Cat III
	Measured Range L-N		1-300 Vrms	1-300 Vrms	1-300 Vrms	1-300 Vrms	1-300 Vrms
	Measured Range L-L		2-500 Vrms	2-500 Vrms	2-500 Vrms	2-500 Vrms	2-500 Vrms
	Measured Frequency Range		45-65 Hz	45-65 Hz	45-65 Hz	45-65 Hz	45-65 Hz
	Power Consumption		<0.1 VA	<0.1 VA	<0.1 VA	<0.1 VA	<0.1 VA
	Sampling Freq.between 45-65 Hz		25.6 kHz	25.6 kHz	12,8 kHz	12,8 kHz	12,8 kHz
Power Quality Measurements	Harmonics for current and voltage phases		Upto 51st	Upto 51st	Upto 31st	Upto 31st	Upto 31st
	THD-Voltage in %		Available	Available	Available	Available	Available
	THD-Current in %		Available	Available	Available	Available	Available
Other Measurements	Run Hour (Operating time for load in hours)		-	-	Available	Available	Available
	On Hour (Operating time for meter in hours)		-	-	Available	Available	Available
	Int Counter (Number of power interruptions)		-	-	Available	Available	Available
Measurement Accuracy	According to IEC 61557-12	Total Active Power	Class 0.2	Class 0.2	Class 0.5	Class 0.5	Class 0.5
		Total Reactive Power	Class 1	Class 1	Class 1	Class 1	Class 1
		Total Apparent Power	Class 0.2	Class 0.2	Class 0.5	Class 0.5	Class 0.5
		Total Active Energy	Class 0.5	Class 0.5	Class 0.5	Class 0.5	Class 0.5
		Total Reactive Energy	Class 2	Class 2	Class 2	Class 2	Class 2
		Frequency	Class 0.05	Class 0.05	Class 0.1	Class 0.1	Class 0.1
		Current	Class 0.2	Class 0.2	Class 0.5	Class 0.5	Class 0.5
		Neutral Current	Class 0.5	Class 0.5	Class 0.5	Class 0.5	Class 0.5
		Voltage	Class 0.2	Class 0.2	Class 0.2	Class 0.2	Class 0.2
		Power factor	Class 0.5	Class 0.5	Class 0.5	Class 0.5	Class 0.5
		THDV, THDI	Class 1	Class 1	Class 1	Class 1	Class 1
	According to IEC 62053-22	Total Active Energy	Class 0.2S	Class 0.2S	Class 0.5S	Class 0.5S	Class 0.5S
	Accoding to IEC 62053-23	Total Reactive Energy	Class 2	Class 2	Class 2	Class 2	Class 2

Electronic Products

POWYS 1-3 Series Energy Analyzers





POWYS 3100	POWYS 1110	POWYS 1120	POWYS 1012	POWYS 1022
3Ø Energy Analyzer	1Ø Energy Analyzer	1Ø Energy Analyzer	1Ø Energy Analyzer	1Ø Energy Analyzer
606300	606351	606352	606354	606355
-	Available	-	Available	-
-	-	Available	-	Available
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Available	Available	Available	Available	Available
1-5000	1-5000	1-5000	1-5000	1-5000
1-5000	1-5000	1-5000	1-5000	1-5000
1-60 minutes adjustable	1-60 minutes adjustable	1-60 minutes adjustable	1-60 minutes adjustable	1-60 minutes adjustable
4	4	4	4	4
256	256	256	256	256
-	1 sec	1 sec	1 sec	1 sec
TT, TN, IT	TT, TN, IT	TT, TN, IT	TT, TN, IT	TT, TN, IT
3P4W, 3P3W	Single-phase with neutral and 1 CT	Single-phase with neutral and 1 CT	Single-phase with neutral and 1 CT	Single-phase with neutral and 1 CT
-	-	-	-	-
-	-	-	-	-
Available	Available	Available	Available	Available
1	1	1	1	1
-	-	-	-	-
Available	Available	Available	Available	Available
Available	-	-	-	-
-	-	-	-	-
10mA-6A AC	10mA-6A AC	10mA-6A AC	10mA-6A AC	10mA-6A AC
300 V Cat II	300 V Cat II	300 V Cat II	300 V Cat II	300 V Cat II
2 kV	2 kV	2 kV	2 kV	2 kV
<0.2 VA	<0.2 VA	<0.2 VA	<0.2 VA	<0.2 VA
100A for 1 sec	100A for 1 sec	100A for 1 sec	100A for 1 sec	100A for 1 sec
12,8 kHz	12,8 kHz	12,8 kHz	12,8 kHz	12,8 kHz
300 V Cat III	300 V Cat III	300 V Cat III	300 V Cat III	300 V Cat III
1-300 Vrms	10-500 Vrms	10-500 Vrms	10-500 Vrms	10-500 Vrms
2-500 Vrms	-	-	-	-
45-65 Hz	45-65 Hz	45-65 Hz	45-65 Hz	45-65 Hz
<0.1 VA	<0.1 VA	<0.1 VA	<0.1 VA	<0.1 VA
12,8 kHz	12,8 kHz	12,8 kHz	12,8 kHz	12,8 kHz
Upto 31st	Upto 31st	Upto 31st	Upto 31st	Upto 31st
Available	Available	Available	Available	Available
Available	Available	Available	Available	Available
Available	Available	Available	Available	Available
Available	Available	Available	Available	Available
Available	Available	Available	Available	Available
Class 0.5	Class 0.5	Class 0.5	Class 0.5	Class 0.5
Class 1	Class 1	Class 1	Class 1	Class 1
Class 0.5	Class 0.5	Class 0.5	Class 0.5	Class 0.5
Class 0.5	Class 0.5	Class 0.5	Class 0.5	Class 0.5
Class 2	Class 2	Class 2	Class 2	Class 2
Class 0.1	Class 0.1	Class 0.1	Class 0.1	Class 0.1
Class 0.5	Class 0.5	Class 0.5	Class 0.5	Class 0.5
Class 0.5	Class 0.5	Class 0.5	Class 0.5	Class 0.5
Class 0.2	Class 0.2	Class 0.2	Class 0.2	Class 0.2
Class 0.5	Class 0.5	Class 0.5	Class 0.5	Class 0.5
Class 1	Class 1	Class 1	Class 1	Class 1
Class 0.5S	Class 0.5S	Class 0.5S	Class 0.5S	Class 0.5S
Class 2	Class 2	Class 2	Class 2	Class 2

POWYS 1-3 Series Energy Analyzers

Type			DNPT	DNPT-B	POWYS 3121	POWYS 3111	POWYS 3101
Inputs and Outputs	Alarm Relay Outputs	Number of outputs	2 pcs.	-	2 pcs.	2 pcs.	2 pcs.
		Type	NO (SPST)	-	NO (SPST)	NO (SPST)	NO (SPST)
		Max. Switching Current	5 A	-	10 A AC / 5 A DC	10 A AC / 5 A DC	10 A AC / 5 A DC
		Max. Switching Voltage	250 V AC	-	250 V AC / 30 V DC	250 V AC / 30 V DC	250 V AC / 30 V DC
		Max. Switching Power	1250 VA	-	1250 VA / 150 W	1250 VA / 150 W	1250 VA / 150 W
	Digital Inputs	Number of inputs	2 pcs.	-	2 pcs.	2 pcs.	2 pcs.
		Minimum Counting Frequency	100 Hz, 10 ms	-	100 Hz, 10 ms	100 Hz, 10 ms	100 Hz, 10 ms
		Input Present or Not	Dry Contact	-	Dry Contact	Dry Contact	Dry Contact
		Isolation Level	5000 Vrms	-	5000 Vrms	5000 Vrms	5000 Vrms
	Digital Outputs	Number of outputs	2 pcs.	-	2 pcs.	2 pcs.	2 pcs.
		Type	Transistor	-	Transistor	Transistor	Transistor
		Switching Voltage Range	5-30 VDC	-	5-30 VDC	5-30 VDC	5-30 VDC
		Minimum Switching Frequency	20 Hz, 50 ms	-	20 Hz, 50 ms	20 Hz, 50 ms	20 Hz, 50 ms
		Isolation Level	5000 Vrms	-	5000 Vrms	5000 Vrms	5000 Vrms
	Analog Outputs	Number of outputs	4	-	-	-	-
		Range of Outputs 0-5 V, 0-10 V, -5-5 V, -10-10V, 0-20 mA, 4-20 mA	Available	-	-	-	-
		Isolation	isolated		-	-	-
Supply	Voltage	AC	85-300V	85-300V	85-300V	85-300V	85-300V
		DC	85-300V	85-300V	85-300V	85-300V	85-300V
	Consumption	AC	< 3VA	< 3VA	<4.5VA	<6VA	<6VA
		DC	<2.5W	<2.5W	<2W	<3W	<3W
	Frequency		45-65Hz	45-65Hz	45-65Hz	45-65Hz	45-65Hz
Data Logging with timestamp	Min/max/avg Values	Hourly records	1920 hours x 68 different paramaters	1920 hours x 68 different paramaters	-	-	-
		Daily records	240 days x 68 different paramaters	240 days x 68 different paramaters	-	-	-
		Monthly records	36 months x 68 different parameters	36 months x 68 different parameters	-	-	-
	Demand		4 months x 16 different parameters	4 months x 16 different parameters	-	-	-
	Alarm records		50	50	-	-	-
Communication	Protocol		Modbus RTU	Modbus RTU	Modbus RTU	Modbus RTU	Modbus RTU
	Baud rate		2400-115200 bps adjustable	2400-115200 bps adjustable	1200-57600 bps adjustable	1200-57600 bps adjustable	1200-57600 bps adjustable
	Parity number		None	None	Odd, Even, None	Odd, Even, None	Odd, Even, None
	Stop bit		1	1	1	1	1
	Address		1-247	1-247	1-247	1-247	1-247
	Isolation		2750V RMS	2750V RMS	2750V RMS	2750V RMS	2750V RMS
Mechanical Properties	Weight(g)		335	335	340	330	278
	Protection Class		IP20	IP20	IP20	IP20	IP20
	Assembly Type		Panel Mount	Panel Mount	Panel Mount	Panel Mount	Panel Mount
Cable Cross Sections	Supply, Voltage, Current, Relay Outputs	Stranded:	2,5 mm² - 14AWG	2,5 mm² - 14AWG	2,5 mm² - 14AWG	2,5 mm² - 14AWG	2,5 mm² - 14AWG
		Solid:	4mm²-12 AWG, 2x1.5 mm²-2x16 AWG	4mm²-12 AWG, 2x1.5 mm²-2x16 AWG	4mm²-12 AWG, 2x1.5 mm²-2x16 AWG	4mm²-12 AWG, 2x1.5 mm²-2x16 AWG	4mm²-12 AWG, 2x1.5 mm²-2x16 AWG
	Digital I/O, RS 485, Analog Output	Stranded:	1,5 mm²-16AWG	1,5 mm²-16AWG	1,5 mm²-16AWG	1,5 mm²-16AWG	1,5 mm²-16AWG
		Solid:	1.5 mm²-16 AWG, 2x0.75 mm²-2x18 AWG	1.5 mm²-16 AWG, 2x0.75 mm²-2x18 AWG	1.5 mm²-16 AWG, 2x0.75 mm²-2x18 AWG	1.5 mm²-16 AWG, 2x0.75 mm²-2x18 AWG	1.5 mm²-16 AWG, 2x0.75 mm²-2x18 AWG
Ambient Conditions	Operating Temperature		-20 to +70 °C	-20 to +70 °C	-20 to +70 °C	-20 to +70 °C	-20 to +70 °C
	Storage Temperature		-30 to +80 °C	-30 to +80 °C	-30 to +80 °C	-30 to +80 °C	-30 to +80 °C
	Relative Humidity (no condensation)		Max.95%	Max.95%	Max.95%	Max.95%	Max.95%

POWYS 3100	POWYS 1110	POWYS 1120	POWYS 1012	POWYS 1022
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	2 pcs.	2 pcs.
-	-	-	Transistor	Transistor
-	-	-	5-30 VDC	5-30 VDC
-	-	-	20 Hz, 50 ms	20 Hz, 50 ms
-	-	-	5000 Vrms	5000 Vrms
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
85-300V	85-300V	85-300V	85-300V	85-300V
85-300V	85-300V	85-300V	85-300V	85-300V
<6VA	<4VA	<4VA	<4VA	<4VA
<3W				
45-65Hz	45-65Hz	45-65Hz	45-65Hz	45-65Hz
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
Modbus RTU	Modbus RTU	Modbus RTU	-	-
1200-57600 bps adjustable	1200-57600 bps adjustable	1200-57600 bps adjustable	-	-
Odd, Even, None	Odd, Even, None	Odd, Even, None	-	-
1	1	1	-	-
1-247	1-247	1-247	-	-
2750V RMS	2750V RMS	2750V RMS	-	-
259	135	135	135	135
IP20	IP20	IP20	IP20	IP20
Panel Mount	Panel Mount	Panel Mount	Panel Mount	Panel Mount
2,5 mm² - 14AWG	2,5 mm² - 14AWG	2,5 mm² - 14AWG	2,5 mm² - 14AWG	2,5 mm² - 14AWG
4mm²-12 AWG, 2x1.5 mm²-2x16 AWG	4mm²-12 AWG, 2x1.5 mm²-2x16 AWG	4mm²-12 AWG, 2x1.5 mm²-2x16 AWG	4mm²-12 AWG, 2x1.5 mm²-2x16 AWG	4mm²-12 AWG, 2x1.5 mm²-2x16 AWG
1,5 mm²-16AWG	2,5 mm² - 14AWG	2,5 mm² - 14AWG	2,5 mm² - 14AWG	2,5 mm² - 14AWG
1.5 mm²-16 AWG, 2x0.75 mm²-2x18 AWG	4mm²-12 AWG, 2x1.5 mm²-2x16 AWG	4mm²-12 AWG, 2x1.5 mm²-2x16 AWG	4mm²-12 AWG, 2x1.5 mm²-2x16 AWG	4mm²-12 AWG, 2x1.5 mm²-2x16 AWG
-20 to +70 °C	-20 to +70 °C	-20 to +70 °C	-20 to +70 °C	-20 to +70 °C
-30 to +80 °C	-30 to +80 °C	-30 to +80 °C	-30 to +80 °C	-30 to +80 °C
Max.95%	Max.95%	Max.95%	Max.95%	Max.95%