

- ▶ PAD-01
- ▶ PAD-02
- ▶ PAD-03
- ▶ PAD-03-DI
- ▶ PAD-03-DO



Our PAD Series Energy Analyzers are designed to measure all parameters of the electrical network, to calculate the consumed energies, to protect and control the system with alarm options, and to display all measured parameters, with the intensive work of our expert R&D team in the field of Power Quality.

It offers design and efficiency together with its 45-265V AC/DC wide supply range, ergonomic design of 96x96x51 mm dimensions and RS-485 communication (Modbus RTU) feature, which is standard in all our energy analyzer series.

- 128x64 Wide Graphic LCD Display
- Easy to Use with Turkish and English Menu Options
- RS-485 Communication (Modbus RTU)
- Adjustable Relay Outputs
- Adjustable Digital Inputs and Outputs
- RTC
- Event and Log Records
- Sag/Swell Measurement
- Discrete Harmonics (31. HD-I & HD-V), (51. HD-I & HD-V)
- V, A, P, Q, S, PF, Cos $\phi$ ,  $\Sigma$ P,  $\Sigma$ Q,  $\Sigma$ S, THD-I, THD-V (Monitoring Parameters)
- Import and Export Energies
- Min, Max and Demands

Product Code	Product Description	Dimensions (mm)	Basic Parameters	Graphic LCD Display (128x64)	3 x Cos $\phi$	Power Factor (PF1,PF2,PF3)	Demand - Max. Demand	Max-Min Values	Neutral Current	Current / Voltage Unbalance	Sag /Swell	THD-I, THD-V	2-31. Harmonics (V-I)	2-51. Harmonics (V-I)	RS-485 Modbus Communication	Digital Input (x2)	Digital Output (x2)	Event Records	Log Records	Relay Outputs (x2)	Alarm State Modes	Date/Time	45-265 V AC/DC Supply
PAD-01	Base Model Communication Energy Analyzer	96x96	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
PAD-02	Advanced Model Communication Energy Analyzer	96x96	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
PAD-03	Advanced Model Communication Energy Analyzer	96x96	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
PAD-03-DI	Advanced Model Communication Energy Analyzer	96x96	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
PAD-03-DO	Advanced Model Communication Energy Analyzer	96x96	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

### General Specifications Table

Product Code	PAD-01	PAD-02	PAD-03	PAD-03-DI	PAD-03-DO
Operating Voltage	45-265 V AC/DC	45-265 V AC/DC	45-265 V AC/DC	45-265 V AC/DC	45-265 V AC/DC
Operating Frequency	30 - 100 Hz	30 - 100 Hz	30 - 100 Hz	30 - 100 Hz	30 - 100 Hz
Current Measurement Range	1mA - 5,5 A	1mA - 5,5 A	1mA - 5,5 A	1mA - 5,5 A	1mA - 5,5 A
Voltage Measurement Range	5-300VAC(L-N) 10 - 520 V AC (L-L)	5-300VAC(L-N) 10 - 520 V AC (L-L)	5 - 300 V AC (L-N) 10 - 520 V AC (L-L)	5-300VAC(L-N) 10 - 520 V AC (L-L)	5-300VAC(L-N) 10 - 520 V AC (L-L)
Frequency	√	√	√	√	√
Cosφ	√	√	√	√	√
Power Factor	R,S,T, Σ PF	R,S,T, Σ PF	R,S,T, Σ PF	R,S,T, Σ PF	R,S,T, Σ PF
Neutral Current Transformer Input	-	-	-	-	-
Ground-Neutral Voltage Measurement	-	-	-	-	-
Neutral Current	√	√	√	√	√
Max-Min Voltage	√	√	√	√	√
Demand-Max Demand	√	√	√	√	√
Active Energy Class 0.5	-	-	√	√	√
Active Energy Class 1	√	√	-	-	-
Reactive Energy Class 1	-	-	√	√	√
Reactive Energy Class 2	√	√	-	-	-
4-Quadrant Energy	√	√	√	√	√
Active Power	P1, P2, P3, ΣP	P1, P2, P3, ΣP	P1, P2, P3, ΣP	P1, P2, P3, ΣP	P1, P2, P3, ΣP
Reactive Power	Q1, Q2, Q3, ΣQ	Q1, Q2, Q3, ΣQ	Q1, Q2, Q3, ΣQ	Q1, Q2, Q3, ΣQ	Q1, Q2, Q3, ΣQ
Apparent Power	S1, S2, S3, ΣS	S1, S2, S3, ΣS	S1, S2, S3, ΣS	S1, S2, S3, ΣS	S1, S2, S3, ΣS
Over / Under Voltage Protection	-	√	√	√	√
Over / Under Current Protection	-	√	√	√	√
Over / Under Frequency Protection	-	√	√	√	√
Over Neutral Current Protection	-	√	√	√	√
Voltage Unbalance Protection	-	√	√	√	√
Current Unbalance Protection	-	√	√	√	√
Phase Seq. / Absence Protection	-	√	√	√	√
% THD-V	√	√	√	√	√
% THD-I	√	√	√	√	√
Sag / Swell	-	√	√	√	√
Discrete Harmonics (HD-V / HD-I)	-	31	51	51	51
Digital Input X2	-	-	-	√	-
Digital Output X2	-	-	-	-	√
RTC	-	√	√	√	√
Sampling Rate	128	128	128	128	128
Event Records	-	-	√	√	√
Log Records	-	-	√	√	√
RS-485 Communication	√	√	√	√	√
Connection Type	3P3W / 3P4W	3P3W / 3P4W	3P3W / 3P4W	3P3W / 3P4W	3P3W / 3P4W
Protection Class	IP54 (Front Panel) IP20 (Body)	IP54 (Front Panel) IP20 (Body)	IP54 (Front Panel) IP20 (Body)	IP54 (Front Panel) IP20 (Body)	IP54 (Front Panel) IP20 (Body)
Relay Output X2	-	Max5A250 Vac Cosφ=1	Max5A250 Vac Cosφ=1	Max5A250 Vac Cosφ=1	Max5A250 Vac Cosφ=1
Indicator	LCD (128x64)	LCD (128x64)	LCD (128x64)	LCD (128x64)	LCD (128x64)
Operating Temperature	-25°C.....70°C	-25°C.....70°C	-25°C.....70°C	-25°C.....70°C	-25°C.....70°C

### Technical Specifications Table

<b>Operating Voltage</b>	45 – 265 VAC / DC $\pm$ %10
<b>Operating Range</b>	Un x (0,9 – 1,1)
<b>Operating Frequency</b>	30 – 100 Hz.
<b>Power Consumption</b>	3 – 6 VA
<b>Measuring Inputs Power Consumption</b>	< 0,5 VA
<b>Current Measurement Range</b>	1 mAAC – 5,5 AAC
<b>Voltage Measurement Range</b>	5 – 300 VAC (L-N) 10 – 520 VAC (L-L)
<b>Current Transformer Ratio</b>	1 – 2000 (10000/5)
<b>Voltage Transformer Ratio</b>	1.0 – 4000.0
<b>Optional</b>	
<b>Digital Input Active Level</b>	6 – 30 VDC
<b>Digital Output Active Level</b>	6 – 30 VDC
<b>Measurement Accuracy</b>	
<b>Voltage</b>	%0,5
<b>Current</b>	%0,5
<b>Frequency</b>	%0,1
<b>Cos<math>\phi</math></b>	%0,2
<b>Active Energy</b>	%1 (PAD-01, PAD-02), %0,5 (PAD-03, PAD-03-DI, PAD-03-DO)
<b>Reactive Energy</b>	%2 (PAD-01, PAD-02), %1 (PAD-03, PAD-03-DI, PAD-03-DO)
<b>Relay Output</b>	2 SPDT Relay NO Max 5A AC 250 VAC Cos $\phi$ =1
<b>Communication</b>	Modbus RTU Optical Isolated, Programmable
<b>Baudrate (bps)</b>	1200, 2400, 4800, 9600, 14400, 19200
<b>Stop Bits</b>	(1), (1,5), (2)
<b>Parity</b>	None (Fixed)
<b>Address (ID)</b>	1 – 247
<b>Harmonics</b>	2 – 31 (PAD-02) 2 – 51 (PAD-03, PAD-03-DI, PAD-03-DO)
<b>Protection Class</b>	IP54 (Front Panel) IP20 (Body)
<b>Device Protection Class</b>	Double Insulated
<b>Operating Temperature</b>	-25°C .....+70°C
<b>Humidity</b>	Maximum %90
<b>Operating Altitude</b>	<2000 m
<b>Panel Connection Type</b>	Front
<b>Connection Type</b>	3P3W (Delta), 3P4W (Star)
<b>IK Code</b>	IK06
<b>Supply Terminal Cable Cross Section</b>	Max 2,5 mm <sup>2</sup>
<b>Voltage Terminal Cable Cross Section</b>	Max 2,5 mm <sup>2</sup>
<b>Current Terminal Cable Cross Section</b>	Max 2,5 mm <sup>2</sup>
<b>Cable Cross Section for RS485, DI, DO</b>	Max 1,5 mm <sup>2</sup>
<b>Weight</b>	238 gr
<b>Dimensions</b>	96 x 96 x 51 mm
<b>Panel Mounting Dimensions</b>	92 x 92 mm
<b>Standards</b>	EN 61000-4-2 EN 61000-4-5 EN 61000-4-6 EN 61000-4-3 EN 61000-4-4 EN 61000-3-3 EN 61000-4-11 EN 61000-4-8 EN 61010-1 EN 55011
<b>EU Directives</b>	2014 / 35 / EU (LVD) Directive 2014 / 30 / EU (EMC)