

Network Analyzers (LED)

MPR-4 Series



MPR-4 Series Network Analyzers

With their compact design and 45mm depth, MPR-4 series new generation network analyzers occupy less space in the panels. Real-time monitoring is possible via large graphic screen. In addition up to 16 MB internal memory and communication feature they offer wide I/O solutions with their replaceable modular structure based on customer requirements and areas of application.

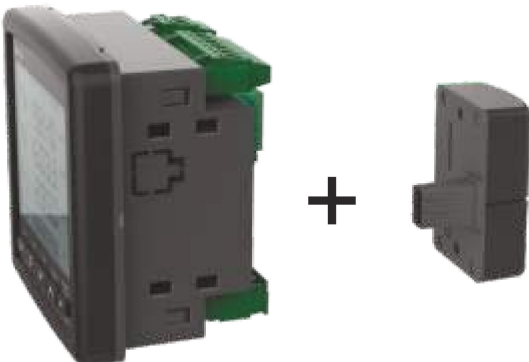


PRODUCT SELECTION TABLE	Dimensions / mm	3xV, 3xI, Frequency, W, VA, VAR, P, Q, S, kWh, kVAh, kVArh, Demand, Max., Min. Cos, Inbr	Active Energy Class 0,5	Active Energy Class 1	% THD-I / % THD-V	Neutral Current Input Individual Harmonics	RS-485	Digital Input	Digital Output	Temperature Input	Analog Output	Relay Output (Alarm)	Clock (RTC)	Memory (MB)	Voltage / Current Unbalances	Tariff	Pulse Counter	Run/On Hour Meter	Alarm	Event Recording	Log Recording	Fixed Current Terminal	X/5, X/1	X/333 mV	24-60 VAC/DC	50-270 VAC/DC
50-270 VAC/DC Supply																										
MPR-45	96x96	●	●	●	*	*	*	*	*	*	●	1	*	●	●	●	●	●	●	●	●	●	●	●	●	
MPR-45S-L	96x96	●	●	●	●	*	*	*	*	*	●	8	*	●	●	●	●	●	●	●	●	●	●	●	●	
MPR-45S	96x96	●	●	●	●	*	*	*	*	*	●	16	8	*	●	●	●	●	●	●	●	●	●	●	●	
MPR-46	96x96	●	●	●	●	*	*	*	*	*	●	1	*	●	●	●	●	●	●	●	●	●	●	●	●	
MPR-46S-L	96x96	●	●	●	●	●	*	*	*	*	●	8	*	●	●	●	●	●	●	●	●	●	●	●	●	
MPR-46S	96x96	●	●	●	●	●	*	*	*	*	●	16	8	*	●	●	●	●	●	●	●	●	●	●	●	
MPR-46S-PM	96x96	●	●	●	●	●	*	*	*	*	●	16	8	*	●	●	●	●	●	●	●	●	●	●	●	
MPR-47S-L	96x96	●	●	●	●	31	●	*	*	*	*	●	8	*	●	●	●	●	●	●	●	●	●	●	●	
MPR-47S	96x96	●	●	●	●	51	●	*	*	*	*	●	16	●	8	*	●	●	●	●	●	●	●	●	●	
MPR-47S-0,5	96x96	●	●	●	●	51	●	*	*	*	*	●	16	●	8	*	●	●	●	●	●	●	●	●	●	
MPR-47S-PM	96x96	●	●	●	●	51	●	*	*	*	*	●	16	●	8	*	●	●	●	●	●	●	●	●	●	
24-60 VAC/DC Supply																										
MPR-47S-D	96x96	●	●	●	●	51	●	*	*	*	*	●	16	●	8	*	●	*	●	●	●	●	●	●	●	
MPR-47S-D-0,5	96x96	●	●	●	●	51	●	*	*	*	*	●	16	●	8	*	●	*	●	●	●	●	●	●	●	
OG Series (Fixed Current Terminals)																										
MPR-42-OGT-26	96x96	●	●	●	31	●	●	●	*	●	●	●	16	8	●	●	●	●	●	●	●	●	●	●	●	
MPR-42-OGT-26-0,5	96x96	●	●	●	31	●	●	●	*	●	●	●	16	8	●	●	●	●	●	●	●	●	●	●	●	
MPR-47-OG	96x96	●	●	●	51	●	*	*	*	*	●	16	8	*	●	●	●	●	●	●	●	●	●	●	●	
MPR-47S-OG-D	96x96	●	●	●	51	●	*	*	*	*	●	16	8	●	*	●	*	●	●	●	●	●	●	●	●	
MPR-47S-OG-D-0,5	96x96	●	●	●	51	●	*	*	*	*	●	16	8	●	*	●	*	●	●	●	●	●	●	●	●	

C Can be used with X5PM converter * Modular structure ● Standard

MPR-4 series network analyzers can be customized for various applications with I/O modules.

I/O Modules:



MPR-4X I/O Module Selection Table					
	Digital Input	Digital Output	Relay Output	Analog Output (V/mA DC)	Temperature Input
MM-120	2				
MM-102		2			
MM-002			2		
MM-122	2	2			
MM-202				2	
MM-144	4	4			

MPR-4X-OG ve MPR-4X-PM I/O Module Selection Table					
	Digital Input	Digital Output	Relay Output	Analog Output (V/mA DC)	Temperature Input
MM-OG-26	2	2	2	2	
MM-OG-42T	2	2			4

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MEASURED PARAMETERS

Phase - Neutral Voltages (V_{LN})	Neutral Current (I_n)	Active Power (P)	Active Energy Import (kWh or MWh)
Phase - Phase Voltages (V_{LL})	Power Factor (P.F)	Reactive Power (Q)	Active Energy Export (kWh or MWh)
Average Phase-Neutral Voltage	Cos	Apparent Power (S)	Reactive Energy Capacitive (kVAh or MVAh)
Average Phase-Phase Voltage	Frequency (Hz)	Total Active Power (P)	Reactive Energy Inductive (kVAh or MVAh)
Max. Demand	Max. / Min. Values	Total Reactive Power (Q)	Apparent Energy (kVAh or MVAh)
Phase Currents (I_L)		Total Apparent Power (S)	

MPR-45 / MPR-45S-L / MPR-45S



Total Harmonic Distortion for Voltage (THD-V)

Total Harmonic Distortion for Current (THD-I)

MPR-46 / MPR-46S-L / MPR-46S / MPR-46S-PM



Sag&Swell

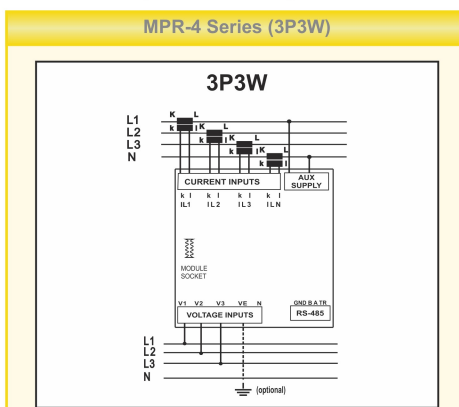
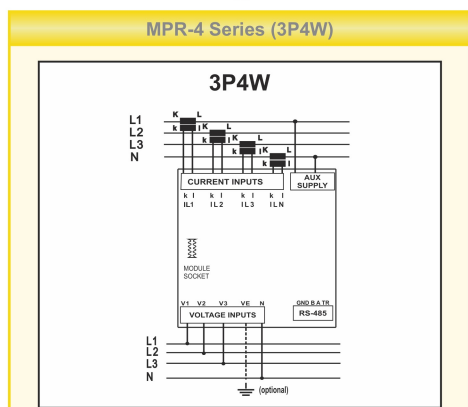
Voltage / Current Unbalances

1-51st Individual Voltage Harmonics

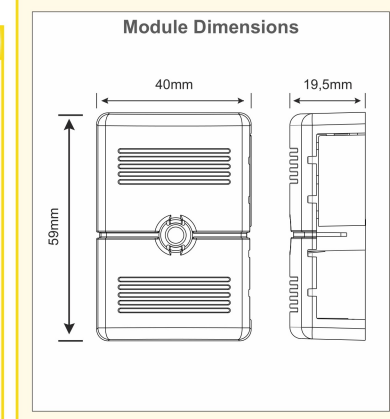
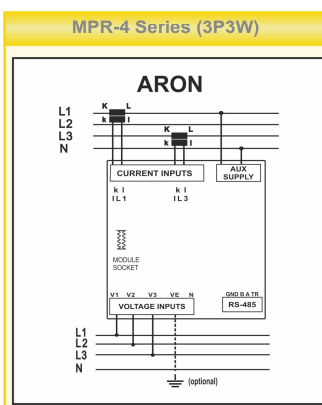
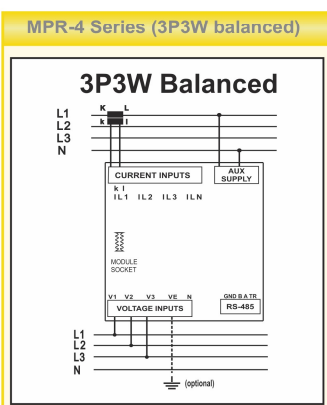
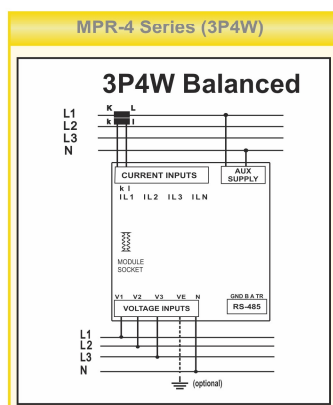
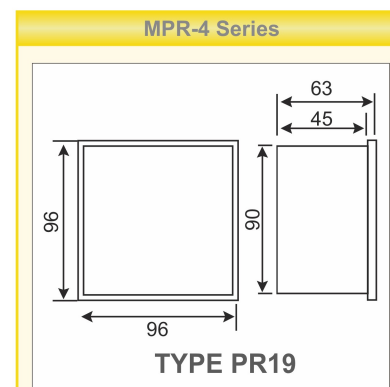
1-51st Individual Current Harmonics

MPR-47S / MPR-47S-D / MPR-47S-0,5 / MPR-47S-D-0,5 / MPR-47S-PM

Connection Diagram PR19 - MPR 4 Series (96x96mm)



Dimensions



Note: A current transformer on neutral current measurement input can be optionally connected, it does not affect the operation of the device.

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SPECIFICATIONS

	MPR-45	MPR-45S-L	MPR-45S	MPR-46	MPR-46S-L	MPR-46S	MPR-47S-L	MPR-47S	MPR-47S-OG	MPR-42-OGT	MPR-46S-PM	MPR-47S-PM		
ENCLOSURE														
Dimensions	96 x 96 x 45 mm; 24 Pcs/Box													
Protection Class (EN 60529)	Front: IP51 (IP54 optional), Terminal: IP20													
Display	3,5" Segmented LCD Display													
MEASUREMENTS														
Sampling Rate per Period	128													
VOLTAGE														
Measurement Range	5 - 300 VAC (L-N), 5 - 480 VAC (L-L)													
Measurement Range with Voltage Transformer	5 V - 999,9 kV													
Accuracy	0,5 % ± 1 digit (0,2 % for MPR-4X-0,5)													
Input Impedance	> 1 MΩ													
Burden	< 0,5 VA													
Neutral - Ground Voltage Measurement (PE-N)	2 - 300 VAC													
CURRENT														
Current Measurement Channels	4						3							
Nominal Current	In : 5A / 1A													
Minimum Current	5 mA													
Measurement Range	50 mA - 5,5 A													
Measurement Range with Current Transformer	50 mA - 10.000 A													
Accuracy	0,5 % ± 1 digit (0,2 % for MPR-4X-0,5)													
Burden	< 0,5 VA													
Overload Current	1,2 In													
Short Time Overload (1 sec)	10 In													
FREQUENCY														
Measurement Range	45 - 65 Hz													
Accuracy	0,1%													
POWER / ENERGY														
Power Measurement at Quadrants	4													
Active Power	0 - 1 GW; 0,5% ± 1 digit													
Reactive Power	0 - 1 GVAR; 1% ± 1 digit													
Apparent Power	0 - 1 GVA; 1% ± 1 digit													
Power Factor and Cos Φ Calculation	±1,00; Accuracy: ±0,02													
Active Energy	0 - 9.999.999,9 kWh or MWh, Class 1 (Class 0,5 for MPR-4X-0,5)													
Reactive Energy	0 - 9.999.999,9 kVarh or MVarh, Class 2 (Class 1 for MPR-4X-0,5)													
Apparent Energy	0 - 9.999.999,9 kVAh or MVAh													
MEASUREMENT OF POWER QUALITY														
Individual Harmonics up to							51			31			-	51
Total Harmonic Distorsion (THD-U/V/I)	-						L-L Voltage (THD-U%), L-N Voltage (THD-V%), Current (THD-I%)							
Voltage and Current Unbalances	-						●			-			-	●
Voltage Sag & Swell	-						●			-			-	●
SUPPLY														
Operating Voltage/Frequency	50 - 270 VAC/DC (24 - 60 VAC/DC for MPR-4X-D), 50/60 Hz													
Power Consumption	< 5 VA (< 10 VA with module)													
COMMUNICATION														
RS-485 Modbus RTU	-	●		-	-	-	-	-	-	-	-	-		
INPUTS AND OUTPUTS (with MODULES)														
DIGITAL INPUT														
Pulse Width	40 - 500 ms													
DIGITAL OUTPUT														
Energy Pulse Output	Active Energy (1 Pulse/MWh - 1 Pulse/MWh), Reactive Energy (1 Pulse/VArh - 1 Pulse/MVarh)													
Pulse Width / Space btw. Pulses	20 - 1000 ms													
Switching Current	max. 50 mA													
Switching Voltage	5 - 24 VDC, max. 30 VDC													
RELAY OUTPUT														
Type and Maximum Load	2 NO, 250 VAC / 5A													
ANALOG OUTPUT														
Current Output	0 - 20 mA, 4 - 20 mA, 0 - 24 mA													
Voltage Output	0-5 V, 0-10 V, ±5 V, ±10 V													
Load Resistance	< 600 Ω													
Accuracy	0,50%													
TEMPERATURE INPUT														
Supported RTD Sensors	Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120													
Supported Thermocouples	B, J, K, N, R, S, T													
AMBIENT CONDITIONS														
Operating Temperature	- 5 / +55 °C													
Storage Temperature	- 20 / +70 °C													
Overvoltage Category	III													
Pollution Degree	II													
Ambient Humidity	max. 90%													
STANDARDS														
Standards	EN 61557-12, EN 61326-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 62053, EN 60068, EN 61010													
CONNECTIONS														
Mounting Type	Flush mount													
Connection Terminals	Screw terminal with socket (Fixed current input terminals on MPR-4X-OG/OGT)													
Connection Types	3 Phase-4 Wire (3P4W), 3 Phase-3 Wire (3P3W), 3 Phase ARON, 3P4W (balanced), 3P3W (balanced)													
AVERAGE VALUES														
Average Value Period	1 - 60 min (adjustable)													
Instantaneous, minimum, maximum	Voltage, Frequency, Reactive Power													
Instantaneous, minimum, maximum, Demand, max. demand	Current, Active Power, Apparent Power													
OTHER FEATURES														
Hour Counter	On Hour, Operating Hour													
Memory Size	-	16 MB		-	16 MB		-	-	-	-	-	16 MB		
Real Time Clock (RTC)	●													
Replaceable Battery	●													
Number of Tariffs	1+Gen	8+Gen		1+Gen	-	-	-	-	-	-	-	8+Gen		
Parameter Data Logging	-	●		-	-	-	-	-	-	-	-	-		
Event Recording	●													

Compatible with Entes plugometer and X/333mV current transformers.

