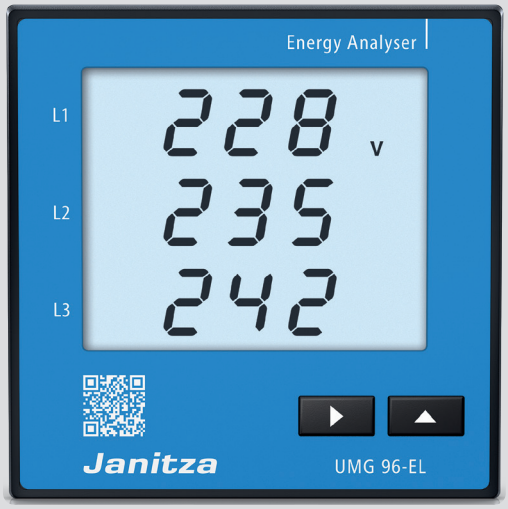
Smart Energy & Power Quality Solutions



The device front can deviate!

Dok.-Nr. 2.067.002.2.a 09/2025

Energy Analyser

UMG 96-EL

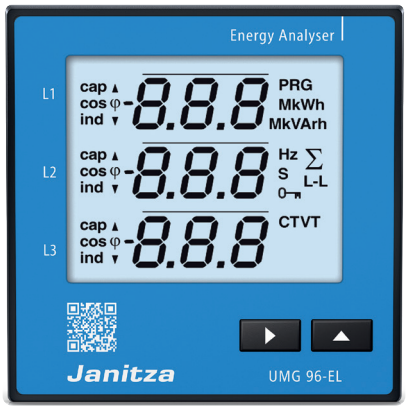
Data sheet

Janitza®

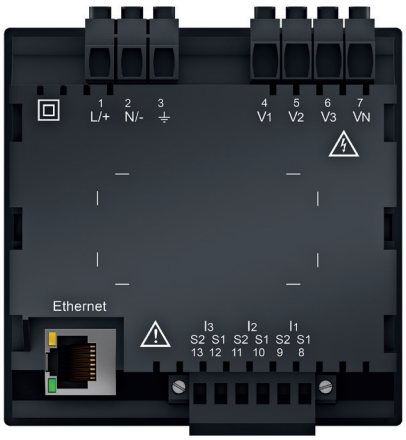
DEVICE VIEWS

The figures are for illustration purposes only and are not to scale.

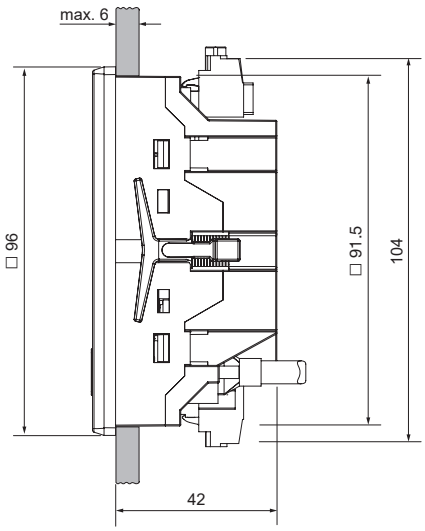
Front view



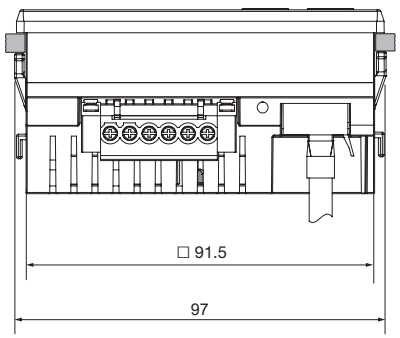
Rear view



Side view



Bottom view



Cut-out size:
$92^{+0.8}$ mm x $92^{+0.8}$ mm
($3.62^{+0.03}$ in x $3.62^{+0.03}$ in)

All dimensions in mm.

TECHNICAL DATA

General	
Net weight (with attached connectors)	approx. 300 g (0.66 lb.)
Packaging weight (including accessories)	approx. 600 g (1.32 lb.)
Integrated memory	8 MB
Service life of background lighting	40 000 h (approx. 50 % of the start brightness)
Impact resistance	6,8 Joule according to UL 61010-1
Cleaning the device front	Wipe with a dry cloth, if necessary moistened with display cleaner, no other solvents

Transport and storage The following specifications apply for devices transported and stored in the original packaging.	
Free fall	1 m (39.37 in)
Temperature	-25 .. +70 °C (-13 .. +158 °F)
Relative humidity	0 .. 90 % non-condensing

Ambient conditions during operation	
The UMG 96-EL is intended for use in weather-protected, fixed locations. Protection class II according to IEC 60536 (VDE 0106, part 1).	
Rated temperature range	-10 .. +55 °C (+14 .. +131 °F)
Relative humidity depending on ambient temperature	Descending linearity: at 31 °C (88 °F) max. 80 % at 40 °C (104 °F) max. 50 % (no condensation)
Operational altitude	0 .. 2000 m (1.24 mi) above sea level
Pollution degree	2
Mounting orientation	as desired
Ventilation	no forced ventilation required
Foreign body and water protection - Front - Back - Front with seal	 IP40 according to EN60529 IP20 according to EN60529 IP54 according to EN60529

Power supply voltage		
Option 230 V	Nominal range	AC 90 V .. 277 V (50/60 Hz) or DC 90 V .. 250 V; 300 V overvoltage category III
	Power consumption	max. 4.0 VA / 1.5 W
Option 24 V	Nominal range	AC 24 V .. 90 V (50/60 Hz) or DC 24 V .. 90 V; 150 V overvoltage category III
	Power consumption	max. 2.5 VA / 1.5 W
Operating range	±10 % of nominal range	
Internal fuse, not replaceable	Type T1A / 250 V/277 V according to IEC 60127	
Recommended overcurrent protection device for line protection (certified under IEC/UL)	Option 230 V: 6 .. 16 A (Char. B) Option 24 V: 1 .. 6 A (Char. B)	

Recommendation for a maximum number of devices on a circuit breaker:
Option 230 V: Circuit breaker B6A: max. 5 devices / Circuit breaker B16A: max. 13 devices
Option 24 V: Circuit breaker B6A: max. 3 devices / Circuit breaker B16A: max. 10 devices

Ethernet interface	
Connection	RJ45
Protocols and services	TCP/IPv4, ICMP, DHCP-Client (BootP), Modbus/TCP (port 502), Identity Port (port 1111), MQTT since firmware 1.1.0 (port configurable)

TECHNICAL DATA

Voltage measurement	
3-phase 4-conductor systems with rated voltages up to	277 V / 480 V (+10 %) (TN/TT)
3-phase 3-conductor systems, earthed or unearthed, with rated voltages up to	480 V (+10 %) (TN/TT, IT)
Measurement category	300 V CAT III
Rated surge voltage	4 kV
Protection of the voltage measurement	1 .. 10 A tripping characteristic B (with IEC/UL approval)
Measuring range L-N	0 [1] .. 300 V_{rms} (max. overvoltage 520 V_{rms})
Measuring range L-L	0 [1] .. 510 V_{rms} (max. overvoltage 900 V_{rms})
Resolution	0.01 V
Crest factor	2.45 (relative to the metering range)
Impedance	3 MΩ/phase
Power consumption	approx. 0.1 VA
Sampling frequency (per measuring channel)	21.33 kHz (50 Hz), 25.6 kHz (60 Hz)
Mains frequency - Resolution	45 Hz .. 65 Hz 0.01 Hz
Fourier analysis	1st .. 40th harmonic

[1] The device only determines measured values when a voltage L1-N greater than 20 V_{rms} (4-conductor measurement) or a voltage L1-L2 greater than 34 V_{rms} (3-conductor measurement) is applied to voltage input V1.

Current measurement	
Rated current	5 A
Measurement range	0.005 .. 6 A_{rms}
Crest factor	1.98
Resolution	0.1 mA (Display 0,01 A)
Measurement category	300 V CAT II
Measurement surge voltage	2 kV
Power consumption	approx. 0.2 VA (Ri =5 mΩ)
Overload for 1 sec.	120 A (sinusoidal)
Sampling frequency (per measuring channel)	21.33 kHz (50 Hz), 25.6 kHz (60 Hz)
Fourier analysis	1st .. 40th harmonic

Connection capacity of the terminals (supply voltage) Connectable conductor. Only one conductor may be connected per contact point!	
Single core, multi-core, fine-stranded (min. .. max.)	0.2 .. 4 mm^2, AWG 24 .. 12
Pin terminals, wire ferrules	0.2 .. 2.5 mm^2
Tightening torque	0.4 .. 0.5 Nm (3.54 .. 4.43 lbf in)
Strip length	7 mm (0.276 in)

Connection capacity of the terminals (voltage and current measurement) Connectable conductor. Only one conductor may be connected per contact point!		
	Current	**Voltage**
Single core, multi-core, fine-stranded (min. .. max.)	0.2 .. 4 mm^2, AWG 24 .. 12	0.2 .. 4 mm^2, AWG 24 .. 12
Wire ferrules without collar	0.2 .. 4 mm^2	0.2 .. 2.5 mm^2
Wire ferrules with collar	0.2 .. 2.5 mm^2	0.2 .. 2.5 mm^2
Tightening torque	0.4 .. 0.5 Nm (3.54 .. 4.43 lbf in)	0.4 .. 0.5 Nm (3.54 .. 4.43 lbf in)
Strip length	7 mm (0.276 in)	7 mm (0.276 in)

PERFORMANCE CHARACTERISTICS OF FUNCTIONS

Function	Symbol	Accuracy class	Measuring range
Frequency	f	0.05 (IEC61557-12)	45 .. 65 Hz
Voltage	U_{L-N}	0.2 (IEC61557-12)	0[1] .. 300 V_{rms}
Voltage	U_{L-L}	0.2 (IEC61557-12)	0[2] .. 510 V_{rms}
Voltage harmonics	Uh	Cl. 1 (IEC61000-4-7)	Up to 2.5 kHz
THD of the voltage	THDu	1 (IEC61557-12)	Up to 2.5 kHz

[1] A voltage > 20 V_{rms} must be applied to voltage input V1.
[2] A voltage > 34 V_{rms} must be applied to voltage input V1.

Accuracy classes with ../5A current transformers (nominal current 5 A)

Function	Symbol	Accuracy class	Measuring range
Total active power	P	0.5 (IEC61557-12)	0 .. 5.4 kW [3]
Total reactive power	QA, Qv	1 (IEC61557-12)	0 .. 5.4 kvar [3]
Total apparent power	SA, Sv	0.5 (IEC61557-12)	0 .. 5.4 kVA [3]
Total active energy	Ea	0.5 (IEC61557-12) 0.5S (IEC62053-22)	0 .. 999999999 GWh
Total reactive energy	ErA, ErV	2 (IEC61557-12)	0 .. 999999999 Gvarh
Total apparent energy	EapA, EapV	0.5 (IEC61557-12)	0 .. 999999999 GVAh
Phase current	I	0.2 (IEC61557-12)	0.005 .. 6 A_{rms}
Neutral conductor current calculated	INc	1 (IEC61557-12)	0.03 .. 25 A
Power factor	PFA, PFV	0.5 (IEC61557-12)	0.00 .. 1.00
Current harmonics	Ih	Cl. 1 (IEC61000-4-7)	Up to 2.5 kHz
THD of the current	THDi	1 (IEC61557-12)	Up to 2.5 kHz

[3] At the measurement inputs, i.e. without consideration of current and voltage transformer ratios.

Accuracy classes with ../1A current transformers (nominal current 1 A)

Function	Symbol	Accuracy class	Measuring range
Total active power	P	1 (IEC61557-12)	0 .. 5.4 kW [3]
Total reactive power	QA, Qv	1 (IEC61557-12)	0 .. 5.4 kvar [3]
Total apparent power	SA, Sv	1 (IEC61557-12)	0 .. 5.4 kVA [3]
Total active energy	Ea	1 (IEC61557-12) 1S (IEC62053-22)	0 .. 999999999 GWh
Total reactive energy	ErA, ErV	2 (IEC61557-12)	0 .. 999999999 Gvarh
Total apparent energy	EapA, EapV	1 (IEC61557-12)	0 .. 999999999 GVAh
Phase current	I	0.5 (IEC61557-12)	0.005 .. 6 A_{rms}
Neutral conductor current calculated	INc	1 (IEC61557-12)	0.03 .. 25 A
Power factor	PFA, PFV	0.5 (IEC61557-12)	0.00 .. 1.00
Current harmonics	Ih	Cl. 1 (IEC61000-4-7)	Up to 2.5 kHz
THD of the current	THDi	1 (IEC61557-12)	Up to 2.5 kHz

[3] At the measurement inputs, i.e. without consideration of current and voltage transformer ratios.

Potential isolation and electrical safety of the interfaces
The Ethernet interface has double insulation to the voltage and current measurement inputs and to the supply voltage. The interfaces of the connected devices require double or reinforced insulation against mains voltages (according to IEC 61010-1).

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