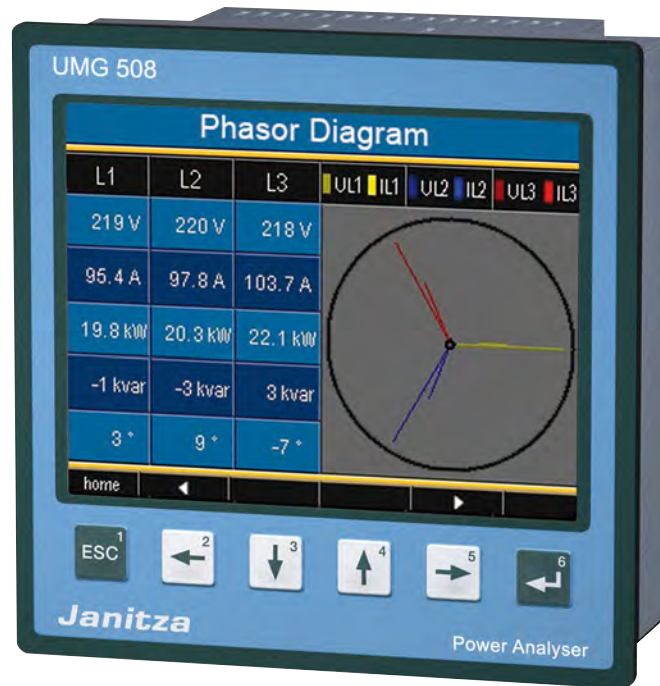


UMG 508



UMG 508 – Multifunctional Power Analyser

with Ethernet and BACnet

The UMG 508 Power Analyser is an ideal choice for front door panel mounting. The instrument is equipped with a colorful graphic display and an intuitive user interface. The extensive measuring functions which include monitoring of voltage sags, short term interruptions, inrush currents, transients, harmonics to the 40th order, etc. are unusual in this price range.

Extensive communication option such as Ethernet TCP/IP, RS485 (Modbus RTU, Profibus), BACnet, HTTP, FTP, SNMP, SMTP, Sntp, DNS or PQDIF allow a cost effective and rapid integration into existing communication structures.

The measurement is made on 4 separate current inputs, either for 3-phase systems with additional measurements in N or G or for measurement of 4 individual single-phase loads. The UMG 508 has a separate energy counter for each current input. The very large data memory of 256 MB permits the logging of all readings for months even without intermediate downloading.

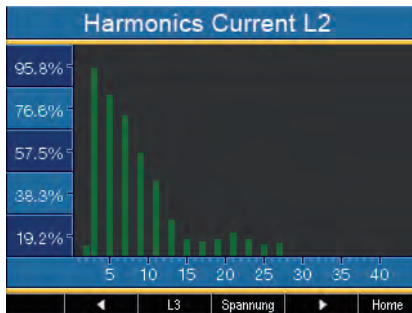
Areas of application

- Monitoring of a wide range of electrical and energy parameters
- Continuous monitoring of the power quality parameters
- Ethernet-Gateway for subordinate measurement devices
- Analysis of electrical faults and root cause analysis in case of power failures
- Cost center management
- Remote monitoring for real estate management
- Usage in test facilities (e.g. in universities)

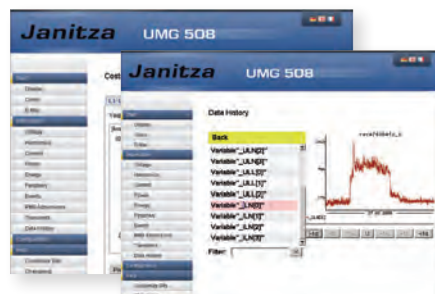
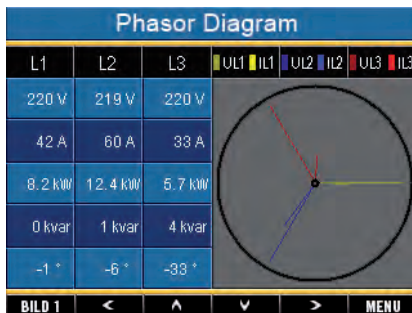
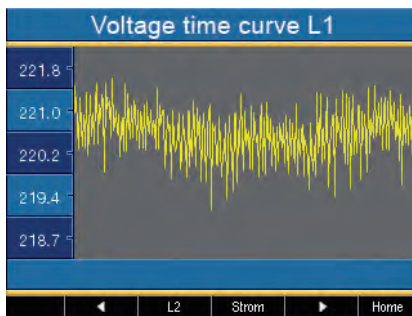


Janitza®

Main features and customer benefits UMG 508



	Messwert	Mittelwert	Maximum
L1-N	-0.000 kW	-0.000 kW	0.000 kW
L2-N	-0.006 kW	-0.006 kW	-0.004 kW
L3-N	-0.006 kW	0.000 kW	0.000 kW
L4-N	0.000 kW	0.000 kW	0.000 kW



User-friendly graphical color display with intuitive user interface

The high-resolution graphic display provides informative presentations of line graphs, FFT harmonic as bar diagram, clear display of the kWh-month values, alarm management/event viewer with dates and time stamp, and many other features.

In addition to the information content, the redesign of the UMG display focuses specifically on the user-friendly, self-explanatory and intuitive operation of the UMG 508.

Modern communication architecture via Ethernet:

Cost-effective, fast and safe communication

In many cases the costs for installation and communication (e.g. peripheral equipment for field buses) can exceed those of the respective power analyzers. Integration of the UMG 508 into an existing Ethernet architecture allows fast, cost-efficient and reliable communication. Additional interfaces enable the integration of the power analyzers into PLC or building automation systems. The use of open standards offers great flexibility to the user.

Modbus Gateway:

Easy integration of devices without Ethernet interface

With the Modbus Gateway function of UMG 508 you can connect less sophisticated Modbus RTU meters to Ethernet. The UMG 508 can be used simultaneously as a gateway for sub-meters or older instruments existing within the installation. Each instrument with a Modbus RTU interface can be connected if its data format and function codes correspond. Data can be scaled and labelled.

Hightspeed Modbus

The UMG 508 series can transfer data via RS485 interface with a speed of up to 921.6 kB/s to other UMG devices of this series.

Alarm management:

E-mail and homepage inform you, wherever you are...

A common situation? You are just leaving the building as the first call arrives about problems in production, computer failure, loss of power...

By using a webbrowser and IP address you have direct access to the extremely powerful homepage of your UMG 508. You can get detailed information about the actual condition of your electrical system from the homepage. Online data as well as historical data and graphs of events are available. Via the homepage you can directly calculate the costs of your energy consumption and export it into a CSV-file or print it out.

Alternatively, an e-mail can alert you if an overload occurs, short-term interruptions disrupt your production process, harmonics occur which can reduce the life expectancy of your technical equipment...

The applications are numerous.



Interfaces

- Ethernet
- Profibus / RS485 (DSUB-9)



Systems

- Solidly grounded, highresistance grounded and ungrounded systems
- 3 and 4 wire systems
- up to 4 single phase circuits

8 Digital inputs

- Pulse input
- Alarm input logic
- Condition monitoring
- High/ low tariff changeover
- Emax reset

5 Digital outputs

- Pulse output kWh/ kvarh
- Switching output
- Limit output
- Emax output
- Logical output

Communication

- Protocols: Profibus (DP/V0)
- Modbus (RTU, UDP, TCP, Gateway)
- TCP/IP
- BACnet
- HTTP: freely programmable homepage
- FTP (file transfer)
- SNMP
- TFTP (automatic configuration)
- NTP (time synchronisation)
- SMTP (e-mail function)
- DHCP
- PQDIF

Accuracy

- Energy: class 0.2 (.../5A)
- Current: 0.2 %
- Voltage: 0.1 %

Maximum demand control

- 64 outputs

Memory

- 256 MByte Flash
- 16 Mbyte RAM

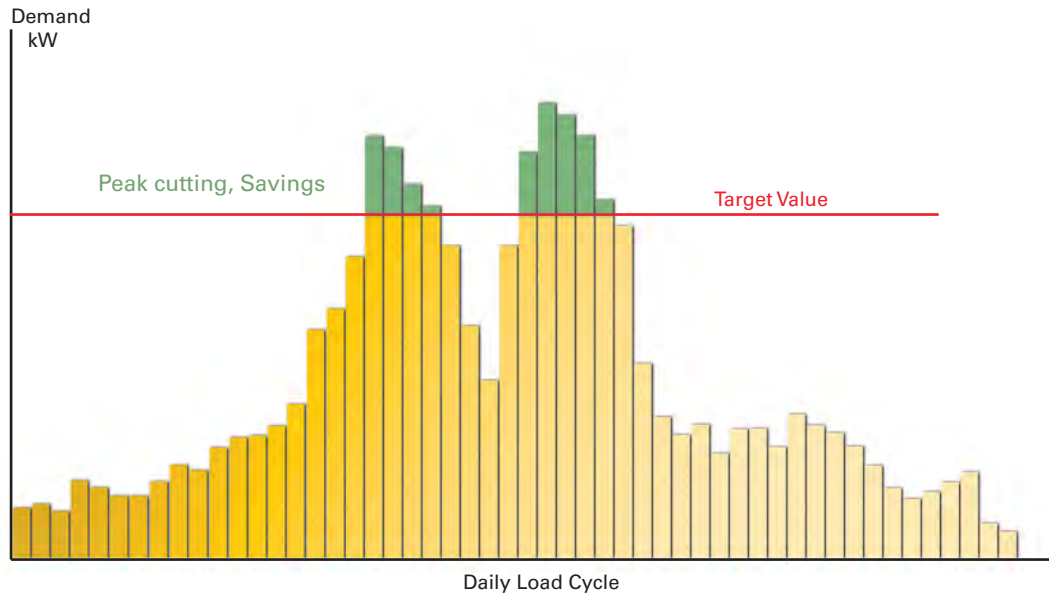
Power quality

- Harmonics, 1st- 40th
- Short-term interruptions
- Transients (>50 µs)
- Inrush currents (> 10 ms)
- Unbalance
- Full period RMS recording (< 4.5 min.)

Programming language

Jasic®

Peak Demand Management Emax Application for UMG508 (Option)



Energy consumption varies significantly over a 24 hour period. This leads to massive strains on the electrical generation and distribution systems and requires expensive peak load generation by electrical utilities. To be compensated for these power peaks, utilities introduced demand tariffs measured in kW or MW.

According to these tariffs the highest measured power consumption peak value within a 15 minute period at any time in a month is used to establish the peak demand fee for electricity costs for the whole month.

If the peak value is reduced the peak demand charge will also diminish. As the costs of electrical energy continue to increase the effect of managing and then reducing demand charges can have a large economic benefit.

The solution to this is an Emax application for Jasic® devices such as the UMG 604, UMG 605, UMG 508 or UMG 511.

The individual customer also has to determine which loads are causing the peak demand. If peaks are due to starting multiple pieces of equipment in less than 15 minutes, can this starting period be extended by use of timers or alternative means?

Once starting issues are settled, it is then necessary to consider whether other equipment may be non-essential during peak periods e.g. pumps and fans, or if something can be temporarily shut down e.g. water heaters, office air conditioning etc..

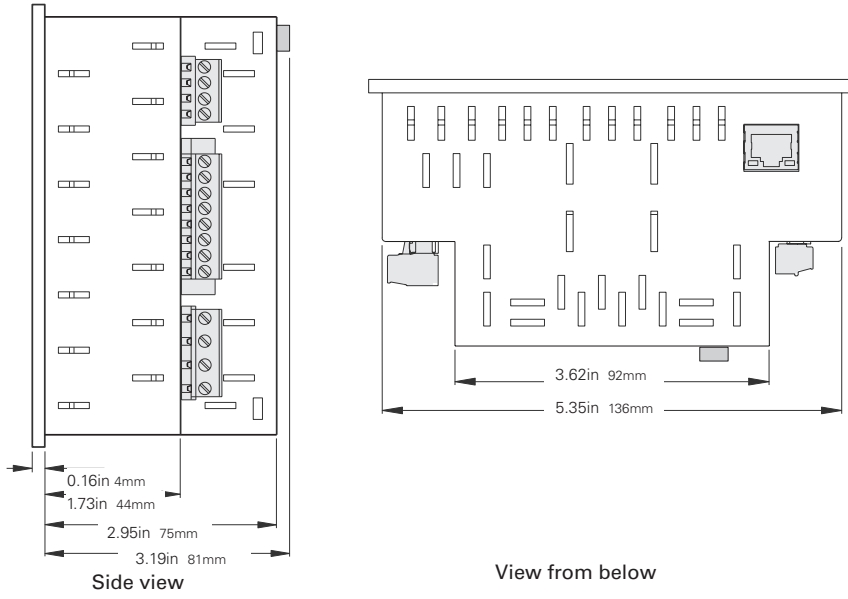
As this equipment is identified plans can be made to switch it on and off automatically.

Emax Applications for Jasic® devices continuously capture all relevant electrical parameters. Integrated smart control algorithms calculate the effective power trend and compare it with a fixed target demand level which is set by the customer. The trend calculation allows the Emax Application for Jasic® devices to send signal via relays to switch off customer designated non-essential loads temporarily in a priority sequence. This sequence can be freely configured by the customer with up to 64 separate stages.

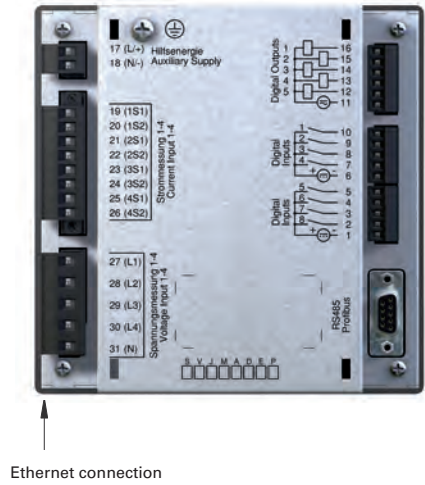
The customer can continue to refine the peak demand control over time and monitor progress with the UMG power analyzers.

Many customers have found that they have made significant improvements as each stage has been implemented and progressively lower demand targets have been set and achieved.

Dimensional drawing



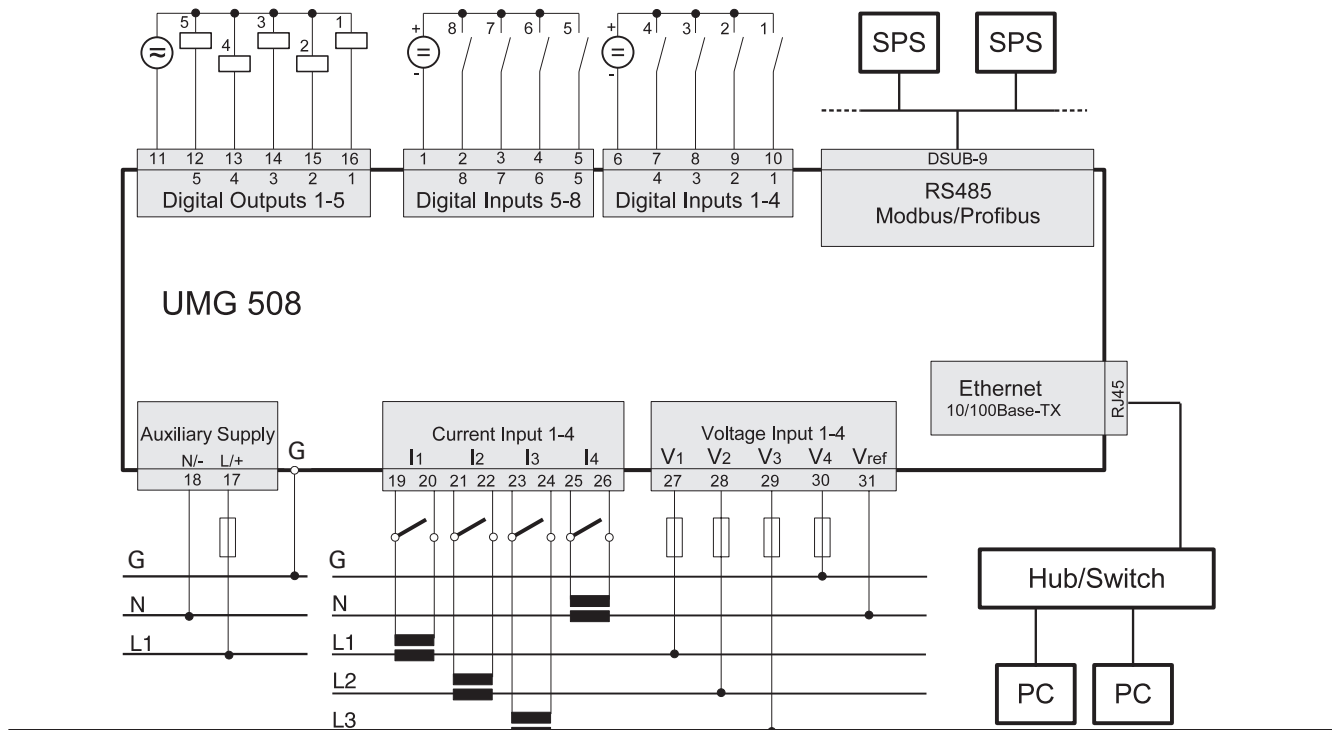
Connection illustration



Panel Cut Out Dimensions

5 7/16 ^{+/-1/32} in x 5 7/16 ^{+/-1/32} in
 138 ^{+/- 0.8}mm x 138 ^{+/- 0.8}mm

Typical connection



Power analyzer UMG 508

Overview of product variants

Three / four phase universal measurement instrument; 50/ 60Hz; current transformer .../1/5A; including GridVis programming and analysis software												
Supply voltage			4 voltage and 4 current inputs	Additional memory 256 MB Flash	8 digital inputs	5 digital outputs	Interfaces			7 freely programmable application programs	Type	Item number
95...240V AC, 80...340V DC ±10% of nominal range	44...130V AC 48...180V DC ±10% of nominal range	20...50V AC 20...70V DC ±10% of nominal range					RS 485*	Ethernet 100baseT	Profibus DP V0			
•	-	-	•	•	•	•	•	•	•	•	UMG 508	52.21.011 ‡
-	•	-	•	•	•	•	•	•	•	•	UMG 508	52.21.012 ‡
-	-	•	•	•	•	•	•	•	•	•	UMG 508	52.21.003
Optionally available												
Application programme Emax function										Emax	52.21.080	
BACnet communication										BACnet	52.21.081	

• = Contained - = Not possible *1 x DSUB-9 connector



Features

Memory	256 MB
Clock	+/- 1 min per month
Integrated logic	Programming language Jasic®
Operating hours counter	yes
Weekly switching clock	Jasic®

Periphery

Digital inputs	as status or pulse input	8
Digital outputs	as switching or pulse output	5
Password protection		yes
Maximum demand control	optional Emax up to 64 channels	yes
Software	GridVis	yes

Communication

Interfaces		
RS 485*	9.6, 19.2, 38.4, 76.8, 115.2, 921.6 kbps	yes
Profibus DP*	Sub D9-pole up to 12 Mbps	yes
Ethernet 10/100 Base-TX	RJ-45 connector	yes
Protocols		
Modbus RTU		yes
Profibus DP V0		yes
Modbus TCP		yes
Modbus over TCP		yes
Modbus-Gateway		yes
HTTP	homepage (configurable)	yes
SMTP	E-Mail	yes
SNTP	time synchronization	yes
TFTP	automatic configuration	yes
FTP	file transfer	yes
SNMP		yes
DHCP		yes
TCP/IP		yes
BACnet		yes, Option
PQDIF		yes, Option

Technical data

Nominal voltage	3-phase 4-wire grid (L - N, L - L) 3-phase 3-wire grid (L - L)	416/720 V AC +10% 600 V AC +10%
Overvoltage class		600 V CAT III
Quadrants		4
Continuous Measurement		yes
Sampling rate, 8 channels	per channel	333 samples/cycle (20 kHz)
Weight		2.2 lbs 1 kg
Dimensions		H 5.67in x W 5.67in x D 3.19 in H144 mm x W144 mm x D81 mm
Mounting	according to IEC EN60999-1/ DIN EN50022	Frontpanel mounting
Working temperature		-10°...55°C (14° .. 131°F)
Connectable wires (V/I)	one wire, more wires, fine stranded wires cable end sleeve	28AWG - 14AWG (0.08 - 2.5 mm ²) 16AWG (1.5 mm ²)
Protection class	according to EN60529	IP 20

Measuring range

Voltage L - N, AC (without VT)		10...416 V rms + 10%
Voltage L - L, AC (without VT)		18...600 V rms + 10%
Current Transformer: (x/1 and x/5 A)		0,005...6 A
Frequency of fundamental		40...70 Hz
Systems		Solidly grounded, high resistance grounded and ungrounded
Measurement in systems		1 ph, 2 ph, 3 ph, 4 ph and up to 4 x 1 ph

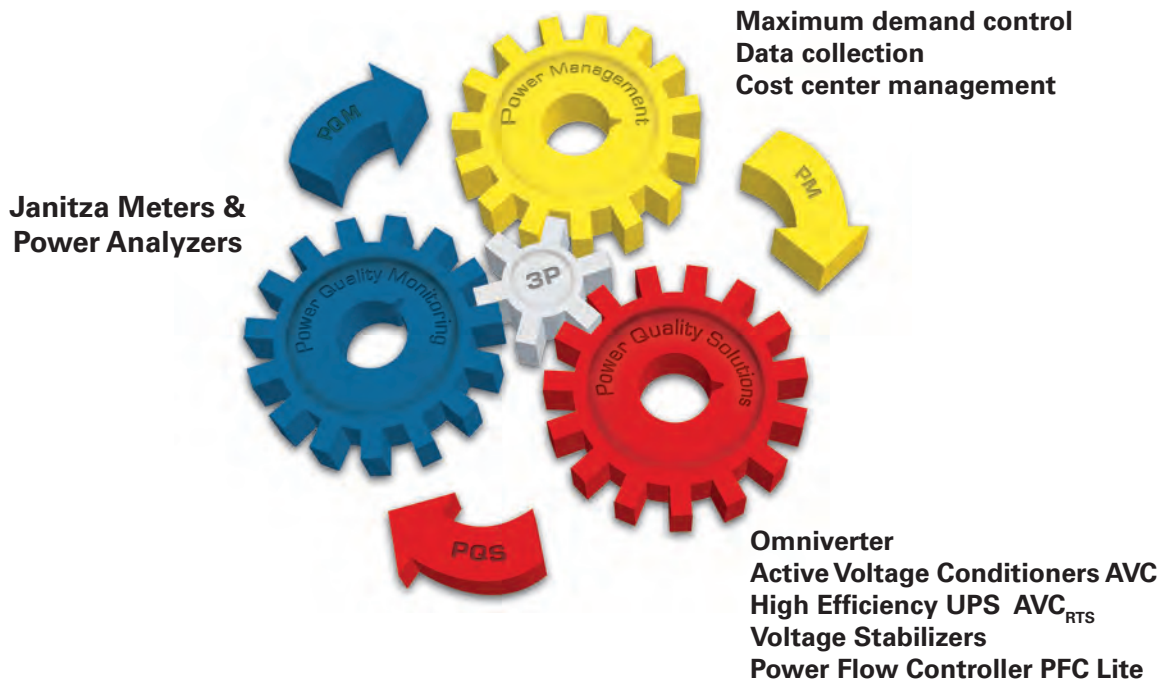
Measured values

Voltage	L1, L2, L3, L4, L1-L2, L2-L3, L1-L3	accuracy ±0.1 %
Current	L1, L2, L3, L4, Sum L1-L3, Sum L1-L4	accuracy ±0.2 %
K-factor	L1, L2, L3, L4	yes
Rotating current components	Positive/ Negative/ Zero Phase Sequence	yes
Real, apparent, reactive power	L1, L2, L3, L4, Sum L1-L3, Sum L1-L4	accuracy ±0.4 %
Cos-phi / phase angle	L1, L2, L3, L4, Sum L1-L3, Sum L1-L4	yes
Phase angle	L1, L2, L3, L4	yes
Real energy (kWh)	L1, L2, L3, L4, Sum L1-L3, Sum L1-L4: - Consumed real energy (rate 1, rate 2) - Supplied real energy (rate 1, rate 2)	Class 0.2 (.../5 A), Class 1 (.../1 A)
Reactive energy (kvarh)	L1, L2, L3, L4, Sum L1-L3, Sum L1-L4: - Inductive energy (rate 1, rate 2) - Capacitive reactive energy	Class 2
Apparent energy (kVAh)	L1, L2, L3, L4, Sum L1-L3, Sum L1-L4	yes
Wave form voltage	L1, L2, L3, L4	yes
Frequency of fundamental		accuracy ±0.1 %
Average values		yes
Minimum and maximum values		yes

Harmonics, 1st- 40th	Current, voltage, real/reactive power (±) L1, L2, L3, L4	accuracy ±(0.5% rdg + 0.05 rng)
Distortion factor THD- V in %	L1, L2, L3, L4	yes
Distortion factor THD- I in %	L1, L2, L3, L4	yes
Unbalance		yes
Positive/ Negative/ Zero Phase Sequence		yes
Transients	50 µs	yes
Inrush-currents	10 ms	yes
Malfunction writer		yes
Short-term interruptions		yes

Continuous incremental improvement is possible with
a process which repeatedly demands:

MEASURE It
MANAGE It
FIX It



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