



MAP Range

HV / MV / LV electrical network quality analyzers – Class A

Network quality Analyzers

PRODUCT ADVANTAGES

- + COMPLIANT**
with the EN 61000-4-30 standard, Class A
- + DETECTION of the fault LOCATION DIRECTION**
(upstream/downstream) for products with current channels
- + ANALYSIS OF TRANSIENTS**
with a high, variable sampling frequency
- + MEASUREMENT OF HARMONICS**
(up to 50th order) and **INTERHARMONICS**
(up to 50th group)
- + FLICKER MEASUREMENT:**
Ift, Pst, Plt
- + PROCESSING**
of the data according to the EN 50160 standard



Communication port: local, modem, integrated Ethernet, multi-point



Status LED: phase order and template overrun



Communication couplers: local, modem, Ethernet

General specifications

The products in the **MAP** range, mounted on a platen or on the cabinet backplate, measure all the parameters of HV/MV/LV electrical networks: RMS voltage, frequency, THD, level of unbalance, positive/negative/zero sequence voltage, flicker, harmonics up to the 50th order, interharmonics up to the 50th group. For products with current channels: RMS current, THDI, active, reactive and apparent power, $\cos \varphi$, power factor, power values of harmonics, energy values (calculated by the software).

The products in the **MAP** range record and, via the associated software, provide detailed, comprehensive and continuous analysis of the quality of the electricity supplied according to the applicable standards, particularly EN 50160: voltage variations (voltage dips, swells and outages), rapid variations (transient overvoltages), flicker or rapid voltage fluctuations...

Various communication modes are available for remote retrieval of the data and detailed analysis of all the parameters recorded. On some models, additional 20 mA analogue inputs can be used to:

- monitor physical parameters from a 20 mA transducer
- monitor statuses such as circuit-breaker contacts and protection relays via suitable couplers
- trigger waveform capture by a digital channel via a digital input/20 mA signal coupler
- check the equipment transmitting binary signals



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MAP 607

Single-phase analyzer — Class A

- 2 voltage channels: phase/neutral and phase/neutral-earth
- Plug & play: no driver required
- USB 2.0 communication port
- Configuration for voltage dips, overvoltages and transient disturbances
- Class A according to IEC 61000-4-30
- Measurement of all the power quality parameters according to the predefined standard (EN 50160, etc.)
- Direct indication on the product:
Green LED: parameters OK
Red LED: parameters outside profile

Management and analysis software

- Qual-SRT: configuration and real-time display
- Qual-view: analysis and reports



Inputs			
Voltage input (Phase-Neutral)	0-300 V RMS	Standard measurement (Class A)	1
Voltage input (Phase/Neutral-Earth)	0-300 V RMS, 700 Vpk		1
Power supply			
Power supply range		Power supply via voltage input	Yes
Internal back-up			Yes
Compliance with standards			
Sliding reference			Yes
IEC 61000-4-30, Classe A	< 0.1%	Reference equipment	Yes
IEC 61000-4-7		Measurement of harmonics	Yes
IEC 61000-4-15		Flicker measurement	Yes
EN 50 160 (European Norm)		Calculated in the unit	Yes
PQDIF format			Option
Hardware			
Memory		Circular Flash Memory (NAND)	64 MB
Sampling rate			12.8 kHz (x2)
Accuracy		Class A	< 0.1%
Resolution			16 bits
Input impedance — Input voltage			10 MΩ
Anti-aliasing filter			Yes
Bandwidth			3.5 kHz
PLL Synchronization			Yes
Communication			
USB port	2.0 (full-speed)	For PC connection, detected automatically Driver not required	Yes
Measurement specifications			
All power quality parameters are measured and stored		Voltage (avg/min/max), Frequency, THD, Harmonics (up to 50th order), Flicker (Lfl, Pst, Plt)	Yes
Analysis of rapid disturbances		Dips/swells (RMS 1/2 cycle), transients	Yes
Waveform capture		Programmable pre-time and post-time	Max. duration 200 cycles
Mechanical specifications			
Housing	For 230 V socket	Humidity: 10% - 85% without condensation	
Dimensions (L x H x D)	120 x 65 x 65 mm		
Weight	0.3 kg	Safety: EN 61 010-1	
Operating temperature	-10°C +55°C	EMC: EN 58 081-1,2; EN 50 082-1,2	

TO ORDER

Model	Reference	Model	Reference
Single-phase analyzer	MAP 607	Analysis software	Qual-view
Communication cable	USB 2.0	Carrying case	CASE 607
Configuration and real-time display software	Qual-SRT		

► Associated products

Management and analysis software

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MAP Range

HV / MV / LV electrical network quality analyzers – Class A

▲ Network quality Analyzers

MAP 610
Three-phase analyzer
Voltages only



MAP 620
Three-phase analyzer
Voltages and current



MAP 640
Three-phase analyzer
Voltages, HF voltages and current



Inputs	Specifications	MAP 610	MAP 620	MAP 640
Voltage	0-275/400 VRMS, 400/690 V (option)	3	3	3
HF voltage	0-275 VRMS (6 kV), high frequency (2 MHz)	-	-	3
Current	0-6 A RMS	-	4	4
General	0-20 mA analogue inputs	-	4	4
Network quality parameters				
Voltage	Min, Max, average values	X	X	X
Frequency		X	X	X
Unbalance		X	X	X
Lfl, Pst and Plt flicker	Pst 10 min, Plt 2 h, Selectable storage range	X	X	X
Signalling voltages	< 3000 Hz	X	X	X
THD-F		X	X	X
Individual harmonics	Up to 50th order	X	X	X
Interharmonics	Up to 50th group	X	X	X
Voltage surges	Number of times and variation (%)	X	X	X
Sliding reference	Complies with IEC 61000-4-30 Class A	X	X	X
Other parameters				
Current	Min, Max and average values	-	X	X
Current harmonics	Up to 50th order	-	X	X
Power measurement	P/Q/S, FP/cosφ	-	X	X
Energy measurement	In the software: active, reactive, apparent	-	X	X
Event-related				
Dips / overvoltages / interruptions / outages	1/2-1 cycles RMS, Class A	X	X	X
Calculation of event direction	Upstream/Downstream	-	X	X
Signature recording	12.8 kHz, half-period RMS curve	X	X	X
Pre-/post-triggering	20 ms < T < 5 s / 1 s < T < 10 s, configurable	X	X	X
Waveform recording	Configurable up to 12.8 kHz	Option	X	X
Pre-/post-triggering	Configurable, max. total duration 400 ms	-	X	X
HF transients, peak detection	2 MHz	-	-	X
Recording of waveforms and HF transients		-	-	X
Power supply				
Power supply input range	85-264 Vac / 110-375 Vdc, (47-63 Hz)	X	X	X
Internal back-up		X	X	X
Compliance with standards				
IEC 61000-4-30, Class A	< 0.1%, reference standard	X	X	X
IEC 61000-4-7	Measurement of harmonics	X	X	X
IEC 61000-4-15	Flicker measurement	X	X	X
EN 50 160	Calculated in the equipment	X	X	X
Customized reports	Calculated in the equipment	X	X	X
PQDIF format			Option	Option
Hardware				
Memory	128 MB Flash memory (NAND)	X	X	X
Sampling frequency		12.8 kHz	12.8 kHz	12.8 kHz/2 MHz
Voltage accuracy		< 0.1%	< 0.1%	< 0.1%
Resolution		16 bit	16 bit	16/10 bit
Standard bandwidth / HF		3.5 kHz / -	3.5 kHz / -	3.5 kHz / 1 MHz
Input impedance - voltage input		1 MΩ	1 MΩ	1 MΩ
Input impedance – current input		-	10 mΩ	10 mΩ
Anti-aliasing filter		X	X	X
Communication				
RS-232	PC port	X	X	X
RS-232	Modems, external couplers, etc.	X	X	X
CL port	Current loop port	X	X	X
Ethernet port (RJ-45)	Ethernet port	Option	Option	Option
Mechanical specifications				
Dimensions (L x H x D) in mm		160 x 240 x 60	160 x 240 x 90	160 x 240 x 90
Weight		1.3 kg	1.3 kg	1.7 kg
Operating temperature		-10 °C +50 °C	-10 °C +50 °C	-10 °C +50 °C

TO ORDER, PLEASE CONTACT US

Non-intrusive HV / MV / LV electrical network quality analyzers – Class A

MAP 612-NI
Three-phase analyzer
Voltages only



MAP 620-NI
Three-phase analyzer
Voltages and current



MAP 650-NI
Three-phase analyzer
Voltages and current, IP65



MAP 670-NI
Three-phase analyzer
Voltages, HF voltages, current, IP65



Inputs	Specifications	MAP 612-NI	MAP 620-NI	MAP 650-NI	MAP 670-NI
Voltage	275/400VRMS, reference equipment (Class A)	3	3	3	3
Voltage range	400/690 V RMS	Option	Option	X	X
HF voltage	400/690 V RMS (6 kV), high frequency (2 MHz)	-	-	-	3
Current via external sensor	120 A, 1.2 kA, 1 kA flex RMS selectable	-	4	4	4
General	0-20 mA analogue inputs	-	-	2	2
Network quality parameters					
Voltage	Min, Max and average values	X	X	X	X
Frequency		X	X	X	X
Unbalance		X	X	X	X
Lfi, Pst and Plt flicker	Pst 10 min, Plt 2 h, Selectable storage range	X	X	X	X
Signalling voltages	< 3,000 Hz	X	X	X	X
THD-F		X	X	X	X
Individual harmonics	Up to 50th order	X	X	X	X
Interharmonics	Up to 50th group	X	X	X	X
Voltage surges	Number of times and variation (%)	X	X	X	X
Sliding reference	Complies with IEC 61000-4-30 Class A	X	X	X	X
Other parameters					
Current	Min, Max and average values	-	X	X	X
Current harmonics	Up to 50th order	-	X	X	X
Power measurement	P/Q/S, FP/cosφ	-	X	X	X
Energy measurement	In the software: active, reactive, apparent	-	X	X	X
Event-related					
Dips / overvoltages / interruptions / outages	1/2-1 cycles RMS, Class A	X	X	X	X
Calculation of event direction	Upstream/Downstream	-	X	X	X
Signature recording	12.8 kHz, half-period RMS curve	X	X	X	X
Pre-/post-triggering	20 ms < T < 5 s / 1 s < T < 10 s, configurable	X	X	X	X
Waveform recording	Configurable up to 12.8 kHz	-	X	X	X
Pre-/post-triggering	Configurable, max. total duration 400 ms	-	X	X	X
HF transients, peak detection	2 MHz	-	-	-	X
Recording of waveforms and HF transients		-	-	-	X
Power supply					
Power supply input range	85-264 Vac, (47-63 Hz) powered on phase 1 measurement	X	X	-	-
Separate power supply input	85-264 Vac / 110-375 Vdc, (47-63 Hz)	Option	Option	X	X
Internal back-up		X	X	X	X
Compliance with standards					
IEC 61000-4-30, Class A	< 0.1%, reference standard	X	X	X	X
IEC 61000-4-7	Measurement of harmonics	X	X	X	X
IEC 61000-4-15	Flicker measurement	X	X	X	X
EN 50 160	Calculated in the equipment	X	X	X	X
Customized reports	Calculated in the equipment	X	X	X	X
PQDIF format		Option	Option	Option	Option
Hardware					
Memory	128 MB Flash memory (NAND)	X	X	X	X
Sampling frequency		12.8 kHz	12.8 kHz	12.8 kHz	12.8 kHz / 2 MHz
Voltage accuracy		< 0.1%	< 0.1%	< 0.1%	< 0.1%
Resolution		16 bit	16 bit	16 bit	16/10 bit
Standard bandwidth / HF		3.5 kHz / -	3.5 kHz / -	3.5 kHz / -	3.5 kHz / 1 MHz
Input impedance – voltage input		1 MΩ	1 MΩ	1 MΩ	1 MΩ
Input impedance – current input		-	Ext. sensor	Ext. sensor	Ext. sensor
Anti-aliasing filter		X	X	X	X
Communication					
RS 232	PC port	X	X	X	X
RS 232	Modems; external couplers, etc.	X	X	X	X
CL Port	Current loop port	-	-	-	-
Ethernet port (RJ-45)	Ethernet port	Option	Option	Option	Option
Mechanical specifications					
Dimensions (L x H x D) in mm		160 x 240 x 60	160 x 240 x 90	200 x 300 x 80	200 x 300 x 80
IP65 casing and connections		-	-	IP65	IP65
Weight		1.3 kg	1.3 kg	1.7 kg	1.7 kg
Operating temperature		-10 °C +50 °C	-10 °C +50 °C	-10 °C +50 °C	-10 °C +50 °C

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► Environment

Operating temperature:

-10°C to + 50°C

Relative humidity:

10% - 85%, without condensation

Installation category:

Category III, 600 V (300 V for the MAP607)

Pollution level: 2

► Compliance with standards

Measurements:

- EN 61000-4-30: Voltage quality measurement method (Class A RMS values)
- EN 61000-4-7: General guide to harmonic and interharmonic measurements
- EN 61000-4-15: Test and measurement technique: flickermeter

Safety (Low Voltage Directive):

- EN 61010-1: Safety rules for electrical equipment for measurement, testing and laboratory use
- EN 60950: Safety of data processing equipment

Communication:

- Protocol compatible with the associated Qual-SRT, E.Qual-Premium and E.Qual-Premium Server software, TCP/IP encapsulation on internal Ethernet port (option)

Electromagnetic compatibility:

- EN 61326-1: Instructions concerning EMC for electrical measurement, control and laboratory equipment including:
 - EN 61000-4-2: Electrostatic discharge Level 3 (Air 8 kV / Contact 4 kV)
 - EN 61000-4-3: Immunity to radiated electrostatic fields – Level 3 (10 V/m)
 - EN 61000-4-4: Fast electrical transients – Level 4 (2kV)
 - EN 61000-4-5: Immunity to voltage surges – Level 4 (common mode 2 kV, differential mode 1 kV)
 - EN 61000-4-6 : Immunity to conducted disturbances – Level 3 (3 Vrms)
 - EN 61000-4-8: Level 4 (30 A/m)
 - EN 61000-4-11: Level 0 (duration 0.5 period – voltage dip and short interruption 100% U)
 - EN 61000-4-12: Level 3 (common mode 2.5 kV / diff. mode 1.0 kV)
- CISPR 16-2-1, CISPR 16-2-3, EN55011 (EN5022 required by the generic standard EN 61326)

► Mechanical specifications

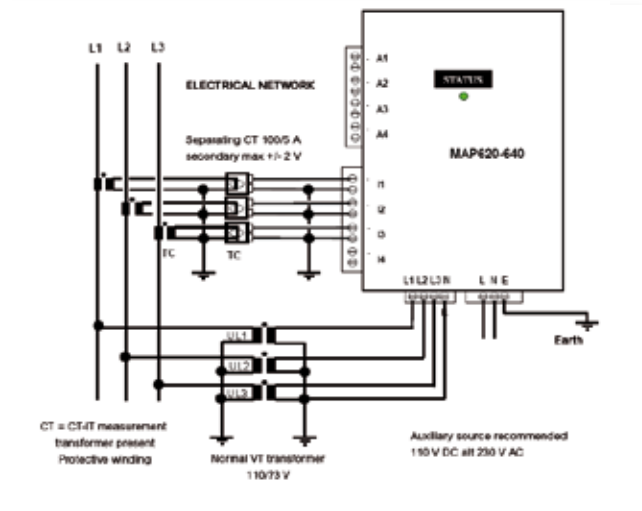
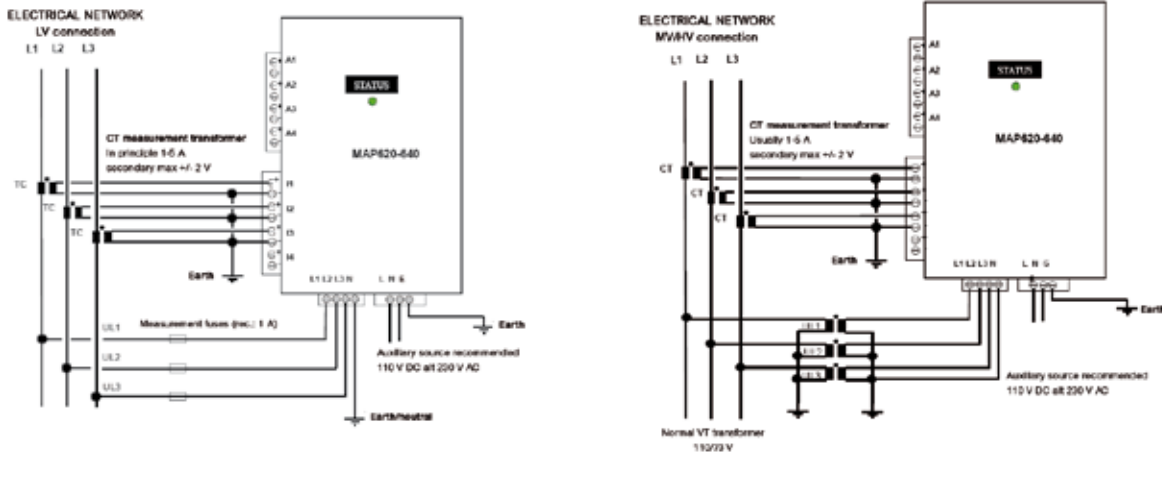
Weight:

- 1.3 kg (MAP 610, MAP612-NI, MAP 620 and MAP640)
- 1.7 kg (MAP 650-NI and MAP 670-NI)
- Mechanical shock test: EN60068-2-27: table 1: 30 g/18 m sec

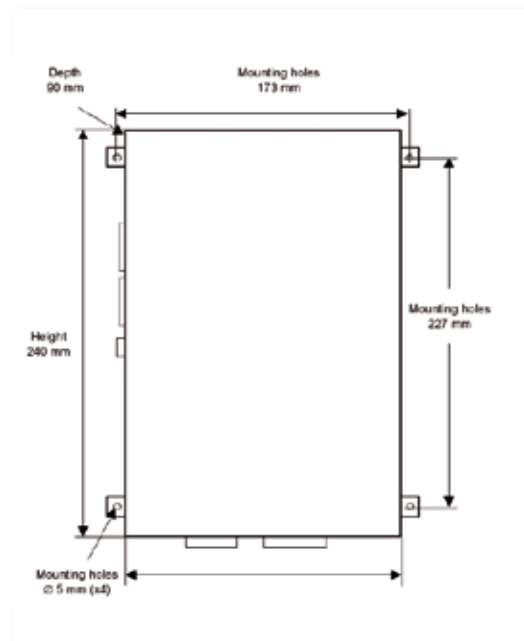
Connection:

- 4 mm² cable for U and I
- 2.5 mm² cable for inputs/outputs

Electrical connections



Dimensions



Associated products

Management and analysis software

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JVS current transformers

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TCRO current transformers

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