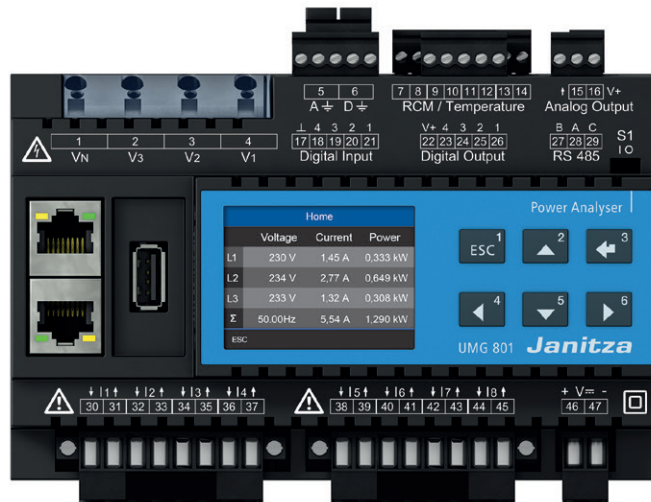


## Modular Power Analyzer

# UMG 801

### Overview of the Measured Values Recording Profiles (as of GridVis version 7.4.40)



## UMG 801 - Overview of Measured Values Recording Profiles

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The German version is the original edition of the documentation

## Subject to technical changes.

The contents of our documentation have been compiled with great care and reflect the current state of the information available to us. Nonetheless, we wish to point out that updates of this document are not always possible at the same time as technical refinements are implemented in our products. Please see our website under [www.janitza.de](http://www.janitza.de) for the current version.

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## Measured Values Recording Profiles

A measured values recording profile contains a series of measured values compiled according to certain specifications, e.g. standards or power quality. For the UMG 801 basic device and the modules, various different measured values recording profiles can be selected in the “Configuration” window of the GridVis® software.

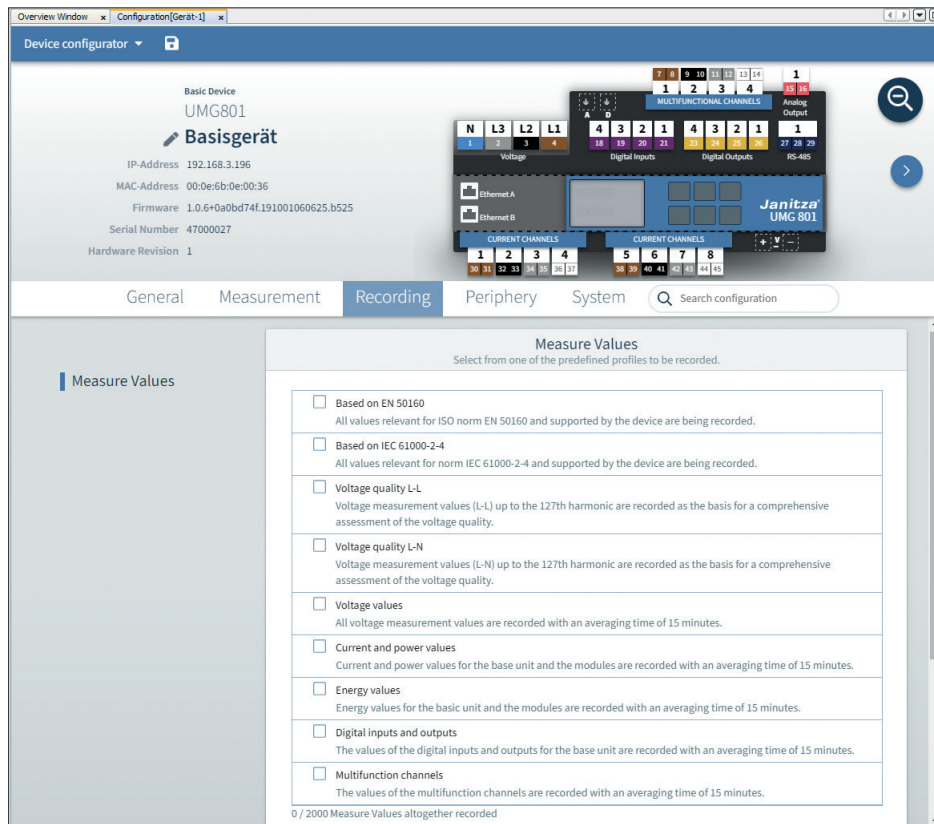


Fig.: The “Configuration” window of the UMG 801 in the GridVis® software.

The GridVis® software contains the following **recording profiles for the UMG 801 with modules**:

- **According to DIN EN 50160**  
*Voltage characteristics of electricity supplied by public distribution networks.*
- **According to IEC 61000-2-4**  
*Measured values according to EMC standards for low and medium voltage industrial plants.*
- **Power quality L-L**  
*Contains power measured values (L-L) up to the 127th Harmonics for assessing the power quality.*
- **Power quality L-N**  
*Contains power measured values (L-N) up to the 127th Harmonics for assessing the power quality.*
- **Voltage values**  
*Contains all measured voltage values with an averaging time of 15 m.*
- **Current and power values**  
*Contains current and power measurement values of the basic device with modules with an averaging time of 15 m.*
- **Energy values**  
*Contains energy measurement values of the basic device with modules with an averaging time of 15 m.*
- **Digital inputs and outputs**  
*Contains measured values of the digital inputs and outputs of the basic device with an averaging time of 15 m.*
- **Multifunction channels**  
*Contains all measured voltage values of the multifunction channels with an averaging time of 15 m.*

### **ⓘ INFORMATION**

Further information on the individual measured values of the recording profiles can be found in the user manual for the device and in the Online Help for the GridVis® software.

## 1. Recording profile according to DIN EN 50160

UMG 801 basic device and modules

Measured values	Sample	Time basis mean value (arithmetic) +Max. + Min.	Unit
Standard frequency	1 m		Hz
Voltage $U_{L1-N}$ , $U_{L2-N}$ , $U_{L3-N}$		1 m	V
Voltage $U_{L1-L2}$ , $U_{L2-L3}$ , $U_{L3-L1}$		1 m	V
Voltage $U_{L1-N}$ , $U_{L2-N}$ , $U_{L3-N}$		10 m	V
Voltage $U_{L1-L2}$ , $U_{L2-L3}$ , $U_{L3-L1}$		10 m	V
THD $U_{L1-N}$ , $U_{L2-N}$ , $U_{L3-N}$		10 m	%
THD $U_{L1-L2}$ , $U_{L2-L3}$ , $U_{L3-L1}$		10 m	%
THD $I_1$ , $I_2$ , $I_3$ , $I_4$ , $I_5$ , $I_6$ , $I_7$ , $I_8$		10 m	%
1st - 40th Harm. $U_{L1}$ , $U_{L2}$ , $U_{L3}$		10 m	V
1st - 40th Harm. $U_{L1-L2}$ , $U_{L2-L3}$ , $U_{L3-L1}$		10 m	V
Voltage imbalance		10 m	%
Multifunction channels of the basic device (with "Current measurement" measuring mode)			
THD $I_{MF1}$ , $I_{MF2}$ , $I_{MF3}$ , $I_{MF4}$		10 m	%

Measured values recording of the UMG 801 acc. to DIN EN 50160.

MF: Multifunction channel with measuring mode set to "Current measurement".

## 2. Recording profile acc. to IEC 61000-2-4

UMG 801 basic device and modules

Measured values	Sample	Time basis mean value (arithmetic) +Max. + Min.	Unit
Standard frequency	1 m		Hz
Voltage $U_{L1-N}$ , $U_{L2-N}$ , $U_{L3-N}$		1 m	V
Voltage $U_{L1-L2}$ , $U_{L2-L3}$ , $U_{L3-L1}$		1 m	V
Voltage $U_{L1-N}$ , $U_{L2-N}$ , $U_{L3-N}$		10 m	V
Voltage $U_{L1-L2}$ , $U_{L2-L3}$ , $U_{L3-L1}$		10 m	V
THD $U_{L1-N}$ , $U_{L2-N}$ , $U_{L3-N}$		10 m	%
THD $U_{L1-L2}$ , $U_{L2-L3}$ , $U_{L3-L1}$		10 m	%
THD $I_1$ , $I_2$ , $I_3$ , $I_4$ , $I_5$ , $I_6$ , $I_7$ , $I_8$		10 m	%
1st - 50th Harm. $U_{L1}$ , $U_{L2}$ , $U_{L3}$		10 m	V
1st - 50th Harm. $U_{L1-L2}$ , $U_{L2-L3}$ , $U_{L3-L1}$		10 m	V
1st - 50th interharmonics $U_{L1}$ , $U_{L2}$ , $U_{L3}$		10 m	V
1st - 50th interharmonics $U_{L1-L2}$ , $U_{L2-L3}$ , $U_{L3-L1}$		10 m	V
Voltage imbalance		10 m	%
Multifunction channels of the basic device (with "Current measurement" measuring mode)			
THD $I_{MF1}$ , $I_{MF2}$ , $I_{MF3}$ , $I_{MF4}$		10 m	%

Measured values recording of the UMG 801 acc. to IEC 61000-2-4.

MF: Multifunction channel with measuring mode set to "Current measurement"

### 3. Recording profile “Power quality L-L”

UMG 801 basic device and modules

Measured values	Sample	Time basis mean value (arithmetic) +Max. + Min.	Unit
Standard frequency	1 m		Hz
Voltage $U_{L1-N}$ , $U_{L2-N}$ , $U_{L3-N}$		1 m	V
Voltage $U_{L1-L2}$ , $U_{L2-L3}$ , $U_{L3-L1}$		1 m	V
Voltage $U_{L1-N}$ , $U_{L2-N}$ , $U_{L3-N}$		10 m	V
Voltage $U_{L1-L2}$ , $U_{L2-L3}$ , $U_{L3-L1}$		10 m	V
THD $U_{L1-N}$ , $U_{L2-N}$ , $U_{L3-N}$		10 m	%
THD $U_{L1-L2}$ , $U_{L2-L3}$ , $U_{L3-L1}$		10 m	%
THD $I_1$ , $I_2$ , $I_3$ , $I_4$		10 m	%
1st - 127th Harm. $U_{L1-L2}$ , $U_{L2-L3}$ , $U_{L3-L1}$		10 m	V
1st - 127th interharmonics $U_{L1-L2}$ , $U_{L2-L3}$ , $U_{L3-L1}$		10 m	V
1st - 63rd interharmonics $I_1$ , $I_2$ , $I_3$ , $I_4$ , $I_5$ , $I_6$ , $I_7$ , $I_8$ **		10 m	A
Voltage imbalance		10 m	%
Reactive power, fundamental oscillation L1, L2, L3, L4 *		10 m	var
Reactive power, fundamental oscillation, sum L1...L3 *		10 m	var
Reactive distortion power L1, L2, L3, L4 *		10 m	var
Multifunction channels of the basic device (with “Current measurement” measuring mode)			
THD $I_{MF1}$ , $I_{MF2}$ , $I_{MF3}$ , $I_{MF4}$		10 m	%
1st - 63rd interharmonics $I_{MF1}$ , $I_{MF2}$ , $I_{MF3}$ , $I_{MF4}$		10 m	A
Reactive power, fundamental oscillation MF1, MF2, MF3, MF4 *		10 m	var
Reactive power, fundamental oscillation, sum MF1...MF3 *		10 m	var
Reactive distortion power MF1, MF2, MF3, MF4 *		10 m	var

Measured values recording of the UMG 801 acc. to recording profile “Power quality L-L”.  
MF: Multifunction channel with measuring mode set to “Current measurement”

\* ... with corresponding voltage/current reference

\*\* ... for a connected module, only a recording of the uneven harmonics (1st, 3rd, 5th, 7th, 9th, 11th ....) is performed.

#### 4. Recording profile “Power quality L-N”

UMG 801 basic device and modules

Measured values	Sample	Time basis mean value (arithmetic) +Max. + Min.	Unit
Standard frequency	1 m		Hz
Voltage $U_{L1-N}$ , $U_{L2-N}$ , $U_{L3-N}$		1 m	V
Voltage $U_{L1-L2}$ , $U_{L2-L3}$ , $U_{L3-L1}$		1 m	V
Voltage $U_{L1-N}$ , $U_{L2-N}$ , $U_{L3-N}$		10 m	V
Voltage $U_{L1-L2}$ , $U_{L2-L3}$ , $U_{L3-L1}$		10 m	V
$U_{L1-N}$ , $U_{L2-N}$ , $U_{L3-N}$		10 m	%
THD $U_{L1-L2}$ , $U_{L2-L3}$ , $U_{L3-L1}$		10 m	%
THD $I_1$ , $I_2$ , $I_3$ , $I_4$		10 m	%
1st - 127th Harm. $U_{L1}$ , $U_{L2}$ , $U_{L3}$		10 m	V
1st - 63rd Harm. $I_1$ , $I_2$ , $I_3$ , $I_4$ , $I_5$ , $I_6$ , $I_7$ , $I_8$ **		10 m	A
1st - 127th interharmonics $U_{L1}$ , $U_{L2}$ , $U_{L3}$		10 m	V
Voltage imbalance		10 m	%
Reactive power, fundamental oscillation L1, L2, L3, L4 *		10 m	var
Reactive power, fundamental oscillation, sum L1...L3 *		10 m	var
Reactive distortion power L1, L2, L3, L4 *		10 m	var
Multifunction channels of the basic device (with “Current measurement” measuring mode)			
THD $I_{MF1}$ , $I_{MF2}$ , $I_{MF3}$ , $I_{MF4}$		10 m	%
1st - 63rd Harm. $I_{MF1}$ , $I_{MF2}$ , $I_{MF3}$ , $I_{MF4}$		10 m	A
Reactive power, fundamental oscillation MF1, MF2, MF3, MF4 *		10 m	var
Reactive power, fundamental oscillation, sum MF1...MF3 *		10 m	var
Reactive distortion power MF1, MF2, MF3, MF4 *		10 m	var

Measured values recording of the UMG 801 acc. to recording profile “Power quality L-N”.  
MF: Multifunction channel with measuring mode set to “Current measurement”

\* ... with corresponding voltage/current reference

\*\* ... for a connected module, only a recording of the uneven harmonics (1st, 3rd, 5th, 7th, 9th, 11th ....) is performed.



## 5. Recording profile “Voltage values”

UMG 801 basic device and modules

Measured values	Sample	Time basis mean value (arithmetic) +Max. + Min.	Unit
Standard frequency	1 m		Hz
Voltage $U_{L1-N}$ , $U_{L2-N}$ , $U_{L3-N}$		15 m	V
Voltage $U_{L1-L2}$ , $U_{L2-L3}$ , $U_{L3-L1}$		15 m	V

Measured values recording of the UMG 801 acc. to recording profile “Voltage values”.

## 6. Recording profile “Current and power values”

UMG 801 basic device and modules

Measured values	Sample	Time basis mean value (arithmetic) +Max. + Min.	Unit
Current $I_1, I_2, I_3, I_4$		15 m	A
Current sum $I_1 \dots I_3$		15 m	A
Active power L1, L2, L3, L4 *		15 m	W
Active power sum L1 ... L3 *		15 m	W
Apparent power L1, L2, L3, L4 *		15 m	VA
Apparent power sum L1 ... L3 *		15 m	VA
Reactive power, fundamental oscillation L1, L2, L3, L4 *		15 m	var
Reactive power, fundamental oscillation sum L1 ... L3 *		15 m	var
Cos(Phi) L1, L2, L3, L4 *		15 m	-
Cos(Phi) sum L1 ... L3 *		15 m	-
Multifunction channels of the basic device (with “Current measurement” measuring mode)			
Current $I_{MF1}, I_{MF2}, I_{MF3}, I_{MF4}$		15 m	A
Current sum $I_{MF1} \dots I_{MF3}$		15 m	A
Active power MF1, MF2, MF3, MF4 *		15 m	W
Active power sum MF1 ... MF3 *		15 m	W
Apparent power MF1, MF2, MF3, MF4 *		15 m	VA
Apparent power sum MF1 ... MF3 *		15 m	VA
Reactive power, fundamental oscillation MF1, MF2, MF3, MF4 *		15 m	var
Reactive power fundamental oscillation sum MF1 ... MF3 *		15 m	var
Cos(Phi) MF1, MF2, MF3, MF4 *		15 m	-
Cos(Phi) sum MF1 ... MF3 *		15 m	-

Measured values recording of the UMG 801 with modules acc. to recording profile “Current and power values”.  
MF: Multifunction channel with measuring mode set to “Current measurement”

\*... with corresponding voltage/current reference

## 7. Recording profile “Energy values”

UMG 801 basic device and modules

Measured values	Sample	Time basis mean value (arithmetic) +Max. + Min.	Unit
Applied active energy L1, L2, L3, L4 *	15 m		Wh
Applied active energy sum L1 ... L3 *			Wh
Apparent energy L1, L2, L3, L4 *	15 m		VAh
Apparent energy sum L1 ... L3 *	15 m		VAh
Reactive energy L1, L2, L3, L4 *	15 m		varh
Reactive energy sum L1 ... L3 *	15 m		varh
Delivered active energy L1, L2, L3, L4 *	15 m		Wh
Delivered active energy sum L1 ... L3 *	15 m		Wh
Active energy L1, L2, L3, L4 *	15 m		Wh
Active energy sum L1 ... L3 *	15 m		Wh
Inductive reactive energy (delivered) L1, L2, L3, L4 *	15 m		varh
Inductive reactive energy sum (delivered) L1 ... L3 *	15 m		varh
Inductive reactive energy (applied) L1, L2, L3, L4 *	15 m		varh
Inductive reactive energy sum (applied) L1 ... L3 *	15 m		varh
Multifunction channels of the basic device (with “Current measurement” measuring mode)			
Applied active energy MF1, MF2, MF3, MF4 *	15 m		Wh
Applied active energy sum MF1 ... MF3 *	15 m		Wh
Apparent energy MF1, MF2, MF3, MF4 *	15 m		VAh
Apparent energy sum MF1 ... MF3 *	15 m		VAh
Reactive energy MF1, MF2, MF3, MF4 *	15 m		varh
Reactive energy sum MF1 ... MF3 *	15 m		varh
Delivered active energy MF1, MF2, MF3, MF4 *	15 m		Wh
Delivered active energy sum MF1 ... MF3 *	15 m		Wh
Active energy MF1, MF2, MF3, MF4 *	15 m		Wh
Active energy sum MF1 ... MF3 *	15 m		Wh
Inductive reactive energy (delivered) MF1, MF2, MF3, MF4 *	15 m		varh
Inductive reactive energy (delivered) sum MF1 ... MF3 *	15 m		varh
Inductive reactive energy (applied) MF1, MF2, MF3, MF4 *	15 m		varh
Inductive reactive energy (applied) sum MF1 ... MF3 *	15 m		varh

Measured values recording of the UMG 801 acc. to recording profile “Energy values”.  
MF: Multifunction channel with measuring mode set to “Current measurement”

\*... with corresponding voltage/current reference

## 8. Recording profile “Digital inputs and outputs”

Basic device UMG 801

Measured values	Time base
Digital input 1 (DI1)	15 m
Digital input 2 (DI2)	15 m
Digital input 3 (DI3)	15 m
Digital input 4 (DI4)	15 m
Digital output 1 (DO1)	15 m
Digital output 2 (DO2)	15 m
Digital output 3 (DO3)	15 m
Digital output 4 (DO4)	15 m

Measured values recording of the UMG 801 acc. to recording profile “Digital inputs and outputs”.

## 9. Recording profile “Multifunction channels”

Basic device UMG 801 with 4 multifunction channels

Configurable measurement modes of channels MF1, MF2, MF3, MF4 with measurement group mode “Single measurement”:

- Current or temperature or residual current measurement

Configurable measurement modes of channels MF1, MF2, MF3, MF4 with group measurement “Three-phase system”:

- Current measurement for MF1, MF2, MF3;
- Current or temperature or residual current measurement for MF4

**Observe the following: The “Multifunction channels” recording profile of the GridVis software records measured values in dependence on the configuration of the multifunction channels!**

Recording with the “Temperature measurement” measuring mode

Measured values (with the “Temperature measurement” measuring mode)	Sample	Time basis mean value (arithmetic) +Max. + Min.	Unit
Temperature MFx		15 m	Wh

Measured values recording of the UMG 801 in the GridVis software acc. to the recording profile “Multifunction channels” (**dependent on the configuration of the multifunction channels on the device!**).

MFx: Multifunction channel x with measuring mode set to “Temperature measurement”

Recording with the “Residual current measurement” measuring mode

Measured values (with the “Residual current measurement” measuring mode)	Sample	Time basis mean value (arithmetic) +Max. + Min.	Unit
Residual current IDIFF (channel MFx)		15 m	A

Measured values recording of the UMG 801 in the GridVis software acc. to the recording profile “Multifunction channels” (**dependent on the configuration of the multifunction channels on the device!**).

MFx: Multifunction channel x with measuring mode set to “Residual current measurement”

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