

# DIGITAL METERING INSTRUMENTS



DMG SERIES



ENERGY AND AUTOMATION

# DMG series



## Digital metering instruments |

For the control of energy distribution system detecting when problems occur that could put the quality and availability of electricity at risk.

The wide range of power supply and measurement, high measurement accuracy of electrical parameters and comprehensive expandability make these products unique in the market.

## MEASURE SETS

- voltage (phase-phase, phase-neutral and neutral-earth)
- supply voltage (DMG... D048 only)
- phase current
- neutral current (calculated and real)
- power (active, reactive and apparent phase and total power)
- P.F. (power factor per phase and total)
- $\cos\phi$  per phase
- active, reactive and apparent system energy
- frequency (frequency measure of measured voltage value)
- voltage and current asymmetry
- total harmonic distortion (THD) of voltage and current
- harmonic analysis of voltage and current up to the 63<sup>rd</sup> order
- maximum (HIGH), minimum (LOW) and medium (AVERAGE) functions for all measurements

## BOOLEAN LOGIC

Output activation according to logic combinations of states and alarms on measures

## WIDE RANGE OF VOLTAGE

Measurement voltage input up to 690VAC and auxiliary voltage input up to 440VAC

## COMMUNICATION

Modbus via USB, RS232 or RS485, Ethernet, Profibus

## EXPANDABILITY

Input/output and communication modules

## MAXIMUM FLEXIBILITY

of configuration and system upgrade as well

## HARMONIC ANALYSIS

Voltages and currents up to the 63<sup>rd</sup> order

## ALARMS

with customizable texts

## CONFIGURATION WITHOUT OPENING THE ELECTRICAL PANEL

via USB or Wi-Fi through communication devices

## MANAGEMENT

of active power max demand



- peak values (maximum demand) of power and current
- active power asymmetry
- meters for active, reactive, apparent partial and total energy with programmable tariff functions
- hour counter for programmable total and partial hours
- pulse counter for general use (pulse count for consumption of water, gas, etc. with expansion module only)
- energy quality analysis to EN 50160 Class B (with expansion module).

# > Modular 4 modules



	DMG 100	DMG 110	DMG 200	DMG 210	DMG 300
Maximum rated voltage	600VAC	600VAC	690VAC	690VAC	690VAC
Voltage and current measure accuracy	0.5%	0.5%	0.5%	0.5%	0.2%
Active energy measure accuracy	Class 1	Class 1	Class 1	Class 1	Class 0.5s
Single phase energy meter	●	●			
Harmonic analysis	15° order	15° order	THD only	THD only	31° order
Boolean logic					●
Expandable with EXM... modules					3 modules
Display type	Icons	Icons	Graphic	Graphic	Graphic
Built-in communication port (Modbus)		Built-in RS485		Built-in RS485	
Communication port with EXM... modules					RS232 USB RS485 Ethernet
Ethernet-RS485 gateway function					●



## SOFTWARE

Monitoring, configuration and remote control energy management

**Synergy**

visit

[EM.LOVATOELECTRIC.COM](http://EM.LOVATOELECTRIC.COM)

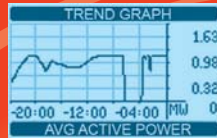
# > Flush mount 96x96mm



	DMG 600	DMG 610	DMG 700	DMG 800	DMG 900	DMG 900T + DMG 900RD
Maximum rated voltage	600VAC	600VAC	690VAC	690VAC	690VAC	690VAC
Voltage and current measure accuracy	0.5%	0.5%	0.5%	0.2%	0.2%	0.2%
Active energy measure accuracy	Class 1	Class 1	Class 1	Class 0.5	Class 0.5	Class 0.5
Single phase energy meter	●	●				
Harmonic analysis	15° order	15° order	THD only	31° order	63° order	63° order
Neutral-earth voltage						●
Neutral current	Calculated	Calculated	Calculated	Calculated	Calculated or measured via CT	Calculated or measured via CT
Boolean logic			●	●	●	●
Expandable with EXP... modules	1 module	1 module	4 modules	4 modules	4 modules	4 modules
Display type	Icons	Icons	Graphic	Graphic	Graphic	Graphic (DMG900RD)
Built-in communication port (Modbus)		RS485				RS485 or RS232 selectable
Communication port with EXP... modules	RS232 USB RS485 Ethernet	RS232 USB RS485 Ethernet	RS232 USB RS485 Ethernet	RS232 USB RS485 Ethernet Profibus DP slave	RS232 USB RS485 Ethernet Profibus DP slave GSM/GPRS	RS232 USB RS485 Ethernet Profibus DP slave GSM/GPRS
Ethernet-RS485 gateway function				●	●	●
Energy quality according to EN50160						●
Degree of protection	IP54	IP54	IP65	IP65	IP65	IP65 (DMG 900RD)
USB communication via CX01	●	●				
Wi-Fi communication via CX02	●	●				

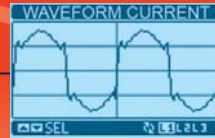
# MULTIMETERS DMG SERIES

## MONITORING



Energy consumption monitoring

## NETWORK



Network quality verification

## ANALYSIS

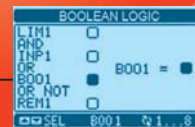


Energy quality analysis according to EN 50160

## ALARMS

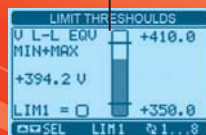


## COMBINATIONS



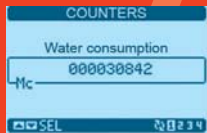
Boolean logic

## CONTROL AND DIAGNOSTIC



## INFORMATION

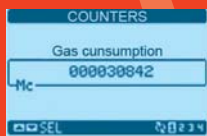
PT 100 temperature  
4-20mA 0-10V



Water



Pressure



PT 100 temperature



*Graphic or icons  
backlight display!*

## ORDER CODES

### Modular LCD multimeters (4U), non expandable



Order codes	Description
<b>DMG 100</b>	Icon LCD display, harmonic analysis, auxiliary supply 100...240VAC/120...250VDC. Multilanguage: english, italian, french, spanish, portuguese and german
<b>DMG 110</b>	Icon LCD display, harmonic analysis, RS485 port, auxiliary supply 100...240VAC/120...250VDC. Multilanguage: english, italian, french, spanish, portuguese and german
<b>DMG 200 ①</b>	Graphic LCD display 128x80 pixel, THD, auxiliary supply 100...240VAC/110...250VDC. Multilanguage: english, italian, french, spanish and portuguese
<b>DMG 210 ①</b>	Graphic LCD display 128x80 pixel, THD, RS485 port, auxiliary supply 100...240VAC/110...250VDC. Multilanguage: english, italian, french, spanish and portuguese

① For versions in english, czech, polish, german and russian add L01 after the code.

### Modular LCD multimeters (4U), expandable with EXM... modules



Order code	Description
<b>DMG 300 ①</b>	Graphic LCD display 128x80 pixel, harmonic analysis, auxiliary supply 100...240VAC/110...250VDC, expandable with modules EXM... series. Multilanguage: english, italian, french, spanish and portuguese

① For versions in english, czech, polish, german and russian add L01 after the code.

### Expansion modules for DMG 300



Order codes	Description
Inputs and outputs.	
<b>EXM10 00</b>	2 digital inputs and 2 static outputs, opto-isolated
<b>EXM10 01</b>	2 opto-isolated digital inputs and 2 relay outputs 5A 250VAC
<b>EXM10 02</b>	4 opto-isolated digital inputs and 2 relay outputs 5A 250VAC
Communication ports.	
<b>EXM10 10</b>	Opto-isolated USB interface
<b>EXM10 11</b>	Opto-isolated RS232 interface
<b>EXM10 12</b>	Opto-isolated RS485 interface
<b>EXM10 13</b>	Ethernet interface
<b>EXM10 20</b>	Opto-isolate RS485 interface and 2 relay outputs 5A 250VAC
<b>EXM10 30</b>	Data storage, RTC with backup battery for data logging

① For versions in english, czech, polish, german and russian add L01 after the code.

② For versions 12-24-48VDC auxiliary supply add D048 after the code.

③ No simultaneous operations of serial ports. Consult Technical Service for information (Tel. 035 4282422; E-mail: service@LovatoElectric.com) or the instructions manual.

④ Powered directly by DMG 900T; direct link to DMG 900T dedicated port.

⑤ Only for DMG 800/900.

⑥ Only for DMG 900.

### Flush mount LCD multimeters (96x96mm), expandable



Order codes	Description
<b>DMG 600</b>	Backlight icon LCD display 72x46mm, harmonic analysis, auxiliary supply 100...440VAC/120...250VDC, front optical port. Multilanguage: english, italian, french, spanish, portuguese and german
<b>DMG 610</b>	Backlight icon LCD display 72x46mm, harmonic analysis, auxiliary supply 100...440VAC/120...250VDC, front optical port, built-in RS485 port. Multilanguage: english, italian, french, spanish, portuguese and german
<b>DMG 700 ①</b>	Backlight graphic LCD display 128x80 pixel, THD, auxiliary supply 100...440VAC/110...250VDC. Multilanguage: english, italian, french, spanish and portuguese
<b>DMG 800 ①②</b>	Backlight graphic LCD display 128x80 pixel, harmonic analysis, auxiliary supply 100...440VAC/110...250VDC. Multilanguage: english, italian, french, spanish and portuguese

### Flush mount LCD touch-screen power analyzers (96x96mm), expandable



Order codes	Description
<b>DMG 900 ①②</b>	Backlight graphic LCD display 128x112 pixel, touch-screen, harmonic analysis, 4 current channels (neutral measurement), 100...440VAC/110...250VDC. Multilanguage: english, italian, french, spanish and portuguese
<b>DMG 900T ②③</b>	Measurement transducer, harmonic analysis, 4 current channels (neutral measurement), 100...440VAC/110...250VDC, RS232 and RS485 ports
Remote display for DMG 900T...	
<b>DMG 900RD ④</b>	Backlight graphic LCD display 128x112 pixel, touch-screen, with 3m long connecting cable

### Expansion modules for flush mount multimeters and power analyzers



Order codes	Description
Inputs and outputs.	
<b>EXP10 00</b>	4 opto-isolated digital inputs
<b>EXP10 01</b>	4 opto-isolated static outputs
<b>EXP10 02</b>	2 digital inputs and 2 static outputs, opto-isolated
<b>EXP10 03</b>	2 relay outputs 5A 250VAC
<b>EXP10 04 ⑤</b>	2 opto-isol. analog inputs 0/4...20mA or PT100 or 0...10V or 0...±5V
<b>EXP10 05 ⑤</b>	2 opto-isolated analog outputs 0/4...20mA or 0...10V or 0...±5V
<b>EXP10 08</b>	2 opto-isolated digital inputs and 2 relay outputs 5A 250VAC
Communication ports.	
<b>EXP10 10</b>	Opto-isolated USB interface
<b>EXP10 11</b>	Opto-isolated RS232 interface
<b>EXP10 12</b>	Opto-isolated RS485 interface
<b>EXP10 13</b>	Opto-isolated Ethernet interface
<b>EXP10 14 ⑥</b>	Opto-isolated Profibus-DP interface
<b>EXP10 15 ⑥</b>	GPRS/GSM modem, without antenna
<b>EXP10 30 ⑥</b>	Data storage, RTC with backup battery for data logging
<b>EXP10 31 ⑥</b>	Data storage, with Energy Quality (EN 50160 - class B), clock calendar (RTC) with backup battery for data logging

### Communication devices



Order codes	Description
<b>CX 01</b>	USB dongle for PC ↔ DMG 6... connection, for programming, monitoring, diagnostics and firmware upgrade
<b>CX 02</b>	Wi-Fi dongle for PC ↔ DMG 6... connection, for programming, monitoring, diagnostics and cloning



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