



Energy meters

Energy meters

For an efficient control of energy consumption

In a modern world in which energy must be monitored and controlled in the most efficient way possible, LOVATO Electric presents its new series of energy meters for single and three-phase systems.

The compatibility with EXM... expansion modules and the availability of the data concentrator allow LOVATO Electric energy meters connectivity to the most common communication systems (USB, RS232, RS485 and Ethernet).

The need for optimising energy control in a number of sectors of industrial and civil activities.



Commercial buildings

Shopping centres, malls, supermarkets, restaurants, hotels, offices, ...



Services and infrastructures

Hospitals, schools, stadiums, camping and mobile home grounds, parking lots, ...



Production lines

Power consumption control of each production line or sector, ...



Transportation

Airports, boat docks and platforms, train stations, ...



Waterworks

Treatment and distribution of drinking water, ...



Telecommunications

Telecommunication antennas, ...

single phase

Mechanical energy meters



DME M100

- Maximum 32A current
- Direct current connection
- Display with 6+1 digits
- Active energy measurement (Class 1)
- 1-module housing.

DME M100 T1

- Features as DME M100 but with 1 static pulse output.

Digital energy meters



DME D100 T1

- Maximum 40A current
- Direct current connection
- Backlight LCD screen with 5+1 digits
- Active energy measurement (Class 1)
- 1 static pulse output
- 1-module housing.



DME D110 T1

- Maximum 40A current
- Direct current connection
- Backlight LCD screen with 5+1 digits
- Active energy measurement (Class 1)
- Multi-measurements
- 1 function key
- 1 programmable static output
- 1-module housing.



DME D120 T1

- Maximum 63A current
- Direct current connection
- Backlight LCD screen with 6+1 digits
- Active energy measurement (Class 1)
- Multi-measurements
- 1 function key
- 1 programmable static output
- 2-module housing.

three phase

Digital energy meters



DME D300 T2

- Maximum 63A current
- Direct current connection
- Backlight LCD screen with 6+1 digits
- Active energy measurement (Class 1)
- Multi-measurements
- 1 function key
- Tariff selection input (2 tariffs)
- 2 programmable static outputs
- 4-module housing.



DME D310 T2

- Rated current input /5A
- Current connection by CT
- Backlight LCD screen (128x80 pixels)
- Active energy measurement (Class 1)
- Multi-measurements
- 3 function keys
- Tariff selection input (2 tariffs)
- 2 programmable static outputs
- Expandable with EXM... modules
- 4-module housing.

| TYPE OF DISPLAY | Mechanical | | Digital | | | | |
|-----------------------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | DMEM 100 | DMEM 100 T1 | DMED 100 T1 | DMED 110 T1 | DMED 120 T1 | DMED 300 T2 | DMED 310 T2 |
| Type of connection | | | | | | | |
| Single phase | • | • | • | • | • | | |
| Three phase | | | | | | | • |
| Three phase + neutral | | | | | | • | • |
| Maximum current | | | | | | | |
| Direct connection up to 32A | • | • | | | | | |
| Direct connection up to 40A | | | • | • | | | |
| Direct connection up to 63A | | | | | • | • | |
| Connection by CT (/5A) | | | | | | | • |
| Inputs/Outputs | | | | | | | |
| Static outputs | | • | • | | | | |
| Programmable static output | | | | • | • | • | • |
| Tariff selection input | | | | | | • | • |
| Expandability | | | | | | | • |
| Display and keypad | | | | | | | |
| Mechanical display | • | • | | | | | |
| LCD screen | | | • | • | • | • | • |
| Function keys | | | | • | • | • | • |

Energy meters

Best control, energy quality and saving



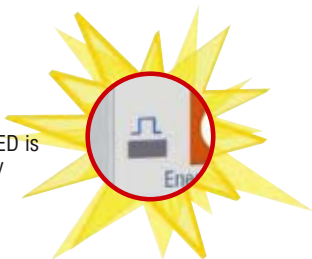
► Multifunction keys

Multifunction keys allow to program the device, to reset the partial count and scroll the measurements.



► Active energy

All the versions do measurements of active energy with accuracy class 1 (IEC/EN 62053-21).



► Metrologic LED

The flashing rate of the LED is proportional to the energy consumption.



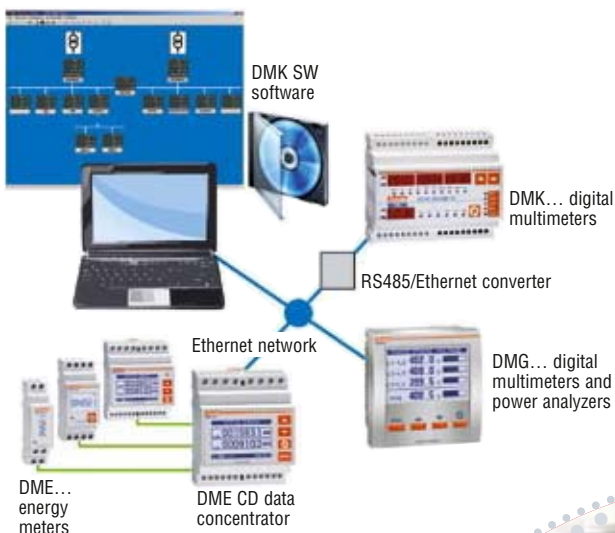
► Sealable terminal covers included

The energy meters are duly equipped with a set of two sealable terminal covers.

► Integration with other LOVATO Electric products

The DME series energy meters can be integrated with DMK and DMG series digital multimeters since units have in common:

- Expansion modules
- Digital inputs and outputs
- Communication ports (RS485, Ethernet, USB and RS232)
- Software.



DME M... compliance (with mechanical display)

Comply with standards:

- IEC/EN 61010-1, IEC/EN 61000-6-2, IEC/EN 62052-11
- IEC/EN 62053-21.

DME D... certifications and compliance (with digital display)

Certifications pending:

- IMQ for MID class B (EN 50470-1-3) for types with MID suffix only; certificates per module B (type tests) and module D (production conformity).
- UL for USA and Canada.

Comply with standards:

- IEC/EN 61010-1, IEC/EN 61000-6-2, IEC/EN 61000-6-3, IEC/EN 62053-21 and IEC/EN 62053-23 for non MID versions or EN 50470-3 for MID versions.



single phase non-expandable

Mechanical energy meters

Meter with 6+1 digits

The active energy count is from 0 to 999999.9kWh. The mechanical energy meter provides the consumption reading for a User even when its power supply is removed.



Compact housing

Units are made with a 1-module housing per DIN standards (17.5mm wide). Maximum current is 32A.



Digital energy meters

High current

The 40A rated current (direct connection) is the highest of digital meter category in a 1-module housing size (17.5mm wide).



Multi-measurement

The DME D1000 T1 and DME D210 T1 counters detect voltage, current, frequency, active-reactive-apparent power, active-reactive energy (total and partial counts) and power factor.



LCD screen

A white-backlight icon display ensures top-quality readings even in poor light conditions.



three phase expandable

Digital energy meters

Expansion modules for DME D310 T2

The DME D310 T2 type energy meter can integrate additional functions by using the following modules:

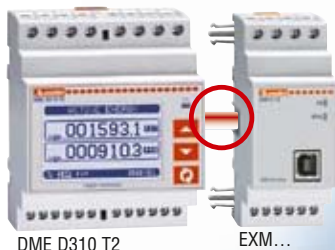
- Digital inputs and outputs, static and relay type
- USB, RS232, RS485 and Ethernet communication interface
- Data memory with clock calendar (RTC) for events.

71,6mm



Optical interface

The interface between the DME D310 T2 and expansion modules is obtained by **infrared beam**. Appropriate connectors provide for a secure fixing of the expansion modules on the energy meter.



MAX
3
MODULES

Maximum of 3 expansion modules

Up to 3 EXM... expansion modules can be fitted on a DME D310 T2 and permit to:

- Communicate
- Control alarms, pulses and tariffs
- Event storage with time stamp.

USB connection

The EXM 10 10 type expansion module permits to quickly connect the energy meter to any type of computer equipped with USB port for consulting data and programming the meters.

Memory module with clock calendar

Allows event and alarm storage with time stamp.



Ethernet connection

The EXM 10 13 type expansion module permits the DME D310 T2 energy meter to be connected to a normal **Internet network** and be viewed, in this way, by one or more connected company computers online.



three phase non-expandable

Digital energy meters

02452.1

LCD screen

A white-backlight icon display ensures top-quality readings even in poor light conditions.



DME D300 T2

V-A-Hz
kWh-P.F.

Multi-measurement

Detect measurements of phase and phase-to-phase voltage, current, frequency, active-reactive-apparent (phase and total) power, active-reactive energy (total and partial counts) and power factor values.

Up to 63A direct connection in only 71.6mm

It is an energy meter with one of the highest direct connection current value on the market, in a compact 4-module housing (only 71.6mm wide).

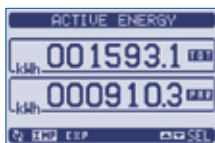
4 module
63A

Tariffs

Consumption and tariffs (kWh) can be monitored with the digital input for instance, considering different day and night time frames.

Multiple energy meters

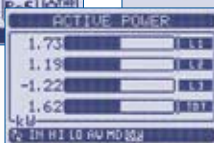
Total and partial meters are available, showing active and reactive energy (import/export).



Graphic symbology for:

Function choice

Access status



Measurement range

All measurements at a glance and customising user's pages

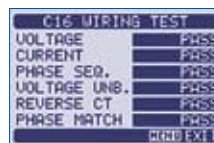
A system can be instantaneously controlled with the display which simultaneously views different measurements.

The user can freely define measurements and information for some pages on the display.



Wiring test

- The wiring test allows to check if the meter installation has been carried out correctly.
- The test permits to check the following:
 - Reading of the three voltages
 - Reading of the three currents
 - Phase sequence
 - Voltage imbalance
 - Polarity reversal of one or more CTs
 - Phase swap between voltage /current.



Graphic LCD screen (128x80 pixels)

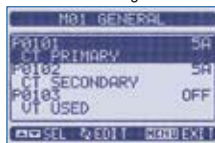
White backlight with adjustable intensity.



5-language texts facilitate:

Measurement consultation

Parameter setting



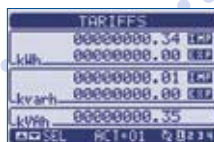
V-A-Hz
kWh-P.F.

Multi-measurement

Detect measurements of phase and phase-to-phase voltage, current, frequency, active-reactive-apparent (phase and total) power, active-reactive-apparent energy (total and partial counts) and power factor values.

Tariffs

Consumption and tariffs (kWh) can be monitored with the digital input for instance, considering different day and night time frames.



Data concentrator

Data collection of energy consumption to send to the PC

Expandable data concentrator

The DME CD data concentrator has been designed in combination with energy meters. It is capable of pulse count coming in from the static outputs of connected energy meters (up to 8), storing data and viewing it on the display or directly on a PC through the built-in RS485 port, using the DMK SW software.

The data concentrator permits to:

- Be connected also to an Ethernet network, or serial ports, such as USB and RS232 using EXM... type expansion modules
- Make available on its display all the data of single digital meters connected and dislocated in the system
- Reduce wiring time and materials.

► DME CD expansion modules

Up to three EXM... type expansion modules, can be fitted on a data concentrator to permit to:

- Communicate
- Control alarms pulses and tariffs
- Store events with time stamp.



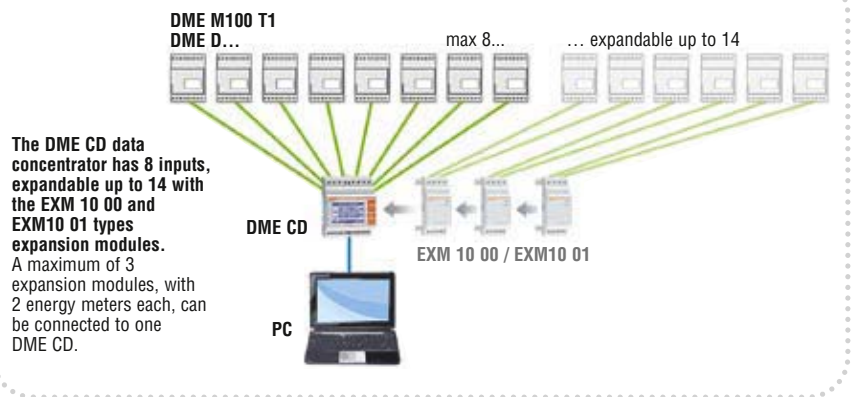
EXM...



DME CD

- Graphic backlight LCD screen (128x80 pixels)
- 4 function keys
- 8 inputs for pulse count, expandable up to 14 using EXM 10 00 and EXM 10 01 type expansion modules
- 8 total energy meters or else up to 14
- 8 partial energy meters or else up to 14, clearable
- Built-in RS485 interface (Modbus[®]-RTU or ASCII)
- Compatible with DMK SW software
- Expandable with EXM... type modules.

Connection example for 14 stores/rooms/offices



Software

Control, monitoring and data supervision for energy consumption

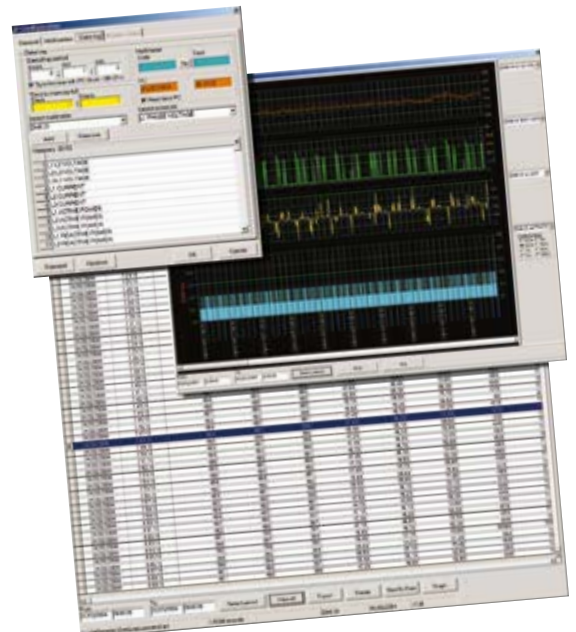
► DMK SW software

Data and energy consumption are displayed. Data, related to different machinery, production lines and areas in a building, can be collected and a balance of consumption thereby be obtained according to the type of required setting.

This software also allows communications between DME series energy meters and LOVATO Electric DMK and DMG series digital multimeters, using expansion modules or the data concentrator.

It is possible to view:

- Interactive synoptic chart of a system
- Real-time electrical measurements
- Trend graphs
- Consumption estimates
- Statistical analysis
- Alarms and events.



How to order

| Order code | Description | Qty per pkg | Wt [kg] |
|------------|-------------|-------------|---------|
|------------|-------------|-------------|---------|

ENERGY METERS

Single phase with mechanical display

| | | | |
|--------------------|--|---|-------|
| DME M100 | 32A, direct connection, 230VAC 50/60Hz | 1 | 0.090 |
| DME M100 T1 | 32A, direct connection, 1 pulse output, 230VAC 50/60Hz | 1 | 0.090 |

Single phase with digital display

| | | | |
|-------------------------|---|---|---|
| DME D100 T1 | 40A, direct connection, 1 pulse output, 220-240VAC 50/60Hz | 1 | ❶ |
| DME D100 T1 A120 | 40A, direct connection, 1 pulse output, 120VAC 50/60Hz | 1 | ❶ |
| DME D110 T1 | 40A, direct connection, 1 programmable output, multi-measurements, 220-240VAC 50/60Hz | 1 | ❶ |

| | | | |
|-------------------------|---|---|---|
| DME D110 T1 A120 | 40A, direct connection, 1 programmable output, multi-measurements, 120VAC 50/60Hz | 1 | ❶ |
| DME D120 T1 | 63A, direct connection, 1 programmable output, multi-measurements, 220-240VAC 50/60Hz | 1 | ❶ |

| | | | |
|-------------------------|---|---|---|
| DME D120 T1 A120 | 63A, direct connection, 1 programmable output, multi-measurements, 120VAC 50/60Hz | 1 | ❶ |
|-------------------------|---|---|---|

Three phase with neutral (non-expandable) with digital display

| | | | |
|--------------------|--|---|---|
| DME D300 T2 | 63A, direct connection, 2 programmable outputs, 1 input for tariff selection, multi-measurements, 220-240/380-415VAC 50/60Hz | 1 | ❶ |
|--------------------|--|---|---|

Three phase with or without neutral (expandable) with digital display

| | | | |
|--------------------|---|---|---|
| DME D310 T2 | CT/5A connection, 2 programmable outputs, 1 input for tariff selection, multi-measurements, 220-240/380-415VAC 50/60Hz, expandable with EXM... type modules | 1 | ❶ |
|--------------------|---|---|---|

DATA CONCENTRATOR (EXPANDABLE)

| | | | |
|---------------|--|---|---|
| DME CD | Data concentrator for DME M... and DME D... types, equipped with pulse output, inputs for up to 8 energy meters, RS485 interface, 220-240VAC 50/60Hz and 120-250VDC, expandable with EXM... type modules | 1 | ❶ |
|---------------|--|---|---|

ACCESSORIES

| | | | |
|---------------|--|---|-------|
| DMK SW | Remote control software for PC -DME D... | 1 | 0,246 |
|---------------|--|---|-------|

Expansion modules for DME D310 T2, DME D310 T2 MID and DME CD

| | | | |
|------------------|--|---|-------|
| EXM 10 00 | 2 digital inputs and 2 static outputs, opto-isolated | 1 | 0.130 |
| EXM 10 01 | 2 opto-isolated digital inputs and 2 output relays rated 5A 250VAC | 1 | 0.130 |
| EXM 10 10 | Opto-isolated USB interface | 1 | 0.130 |
| EXM 10 11 | Opto-isolated RS232 interface | 1 | 0.130 |
| EXM 10 12 | Opto-isolated RS485 interface | 1 | 0.130 |
| EXM 10 13 | Opto-isolated Ethernet interface | 1 | 0.145 |
| EXM 10 20 | Opto-isolated RS485 interface and 2 output relays rated 5A 250VAC | 1 | 0.130 |
| EXM 10 30 | Data storage, clock-calendar (RTC) with backup battery for event logging | 1 | ❶ |

❶ Contact our Customer Service.

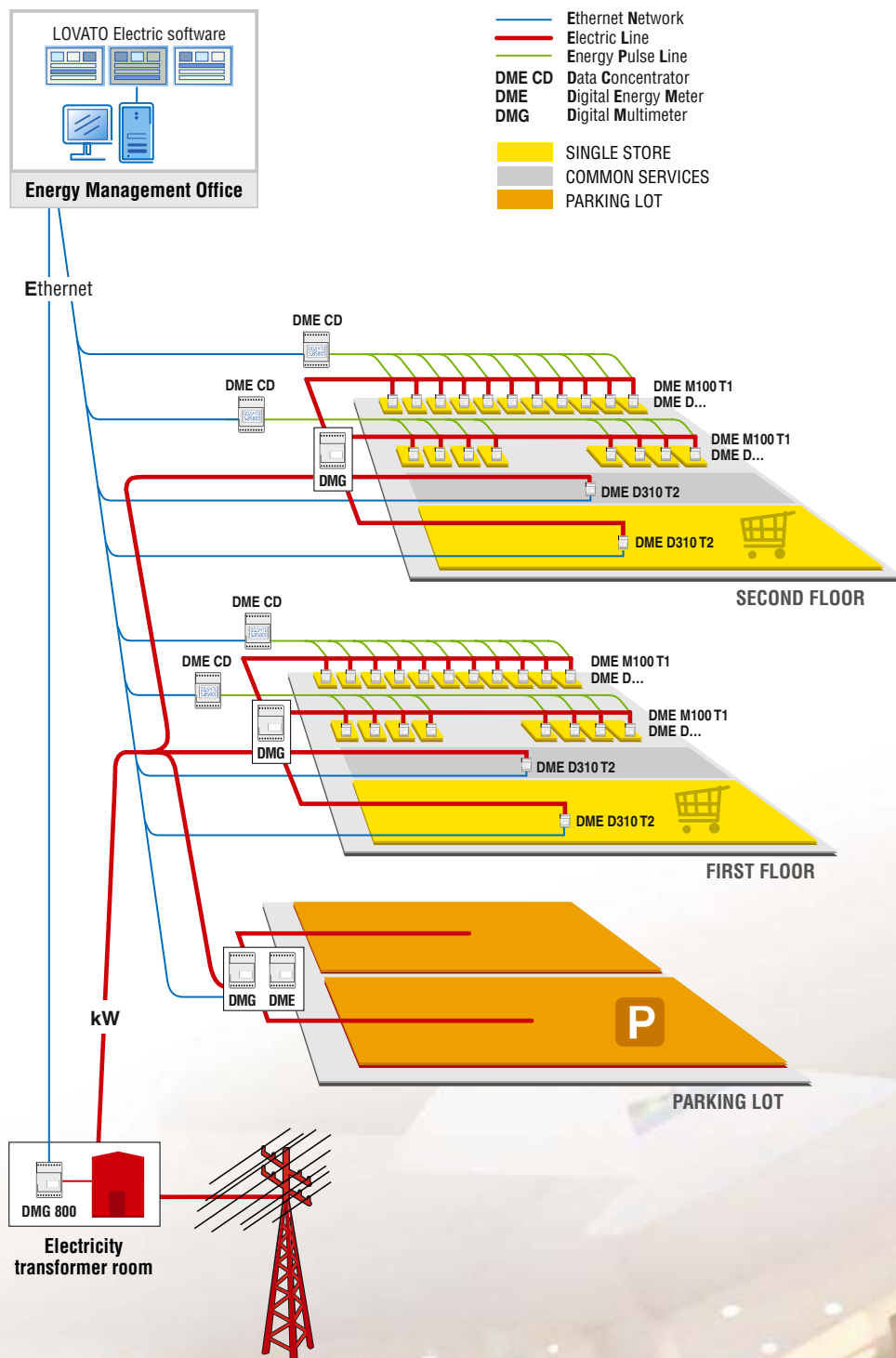
DME M... technical characteristics

- Auxiliary supply: Self Powered
- Active energy measurement accuracy: Class 1 per IEC/EN 62053-21
- Degree of protection: IP20 on terminals
IP40 on front
- Operating temperature: -25...+55°C
- Storage temperature: -30...+80°C
- Power consumption: 7VA
- Power dissipation: 0.1W

DME D... technical characteristics

- Auxiliary supply: Self Powered
- Active energy measurement accuracy: Class 1 per IEC/EN 62053-21
- Degree of protection: IP20 on terminals
IP51 on front
- Operating temperature: -25...+55°C
- Storage temperature: -25...+70°C
- Power consumption: 10VA
- Power dissipation: 2W

Application example: shopping centre





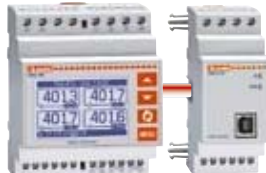
Switch disconnectors
16 to 1250A

orange



Contactors

DME



Modular digital multimeters

DME



Flush-mount digital multimeters
and power analyzers

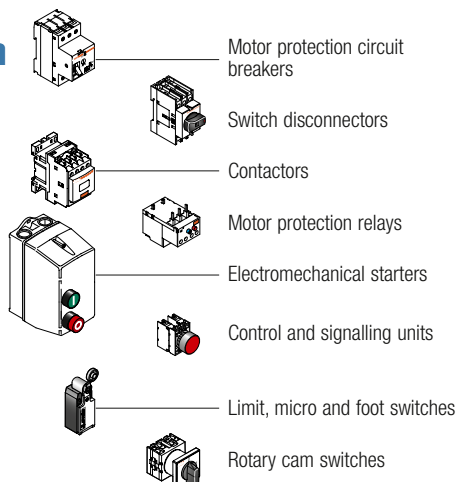


AC motor drives

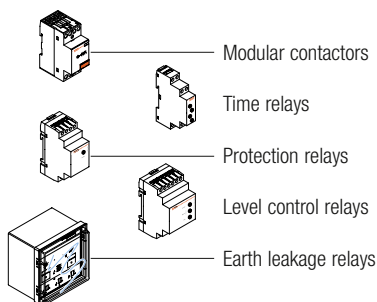


Automatic transfer switch
controllers

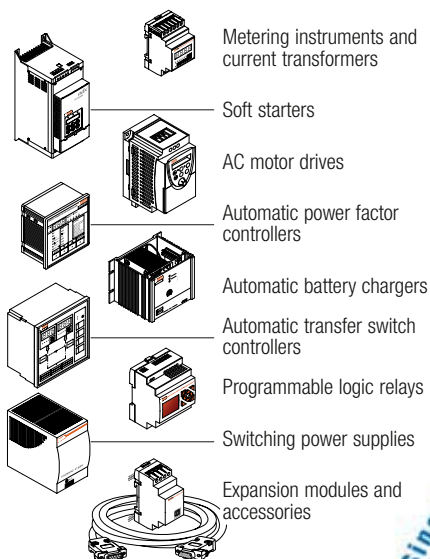
PLANET Switch



PLANET Din



PLANET Logic



www.LovatoElectric.com

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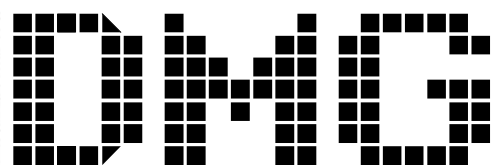
Present in over 90 countries



Digital multimeters and power analyzers DMG series



Lovato
electric
100% electricity



DIGITAL MULTIMETERS AND POWER ANALYZERS

*with backlit graphic
LCD screen*



For the control of energy distribution systems detecting when problems occur that could put the quality and availability of electricity at risk. The wide range of power supply and measurements, high measurement accuracy of electrical quantities and comprehensive expandability make these products unique to the market.

- ✓ Easy and intuitive menu navigation
- ✓ Graphic display with text in 5 languages
- ✓ Expandability
- ✓ Ethernet, USB, RS232, RS485 and Fieldbus connection
- ✓ High measurement accuracy
- ✓ Wide range for power supply, measurements and temperature
- ✓ Suitable for LV, MV and HV electric systems and installations



VERSATILITY, EXPANDABILITY AND HIGH MEASUREMENT QUALITY



MAIN FEATURES

| | Digital multimeters | | | Digital multimeters | | Digital power analyzers | |
|---|---------------------|---------|---------|---------------------|---------|-------------------------|---------------------|
| | DMG 200 | DMG 210 | DMG 300 | DMG 700 | DMG 800 | DMG 900 | DMG 900T Transducer |
| Modular version, 4-module | • | • | • | | | | |
| Flush-mount version, 96x96mm | | | | • | • | • | |
| DIN rail fixing version, rear mount | • | • | • | | | | • |
| Graphic 4-key LCD, 128x80 pixels | • | • | • | • | • | | |
| Graphic touch-screen LCD, 128x112 pixels | | | | | | • | |
| Expandability | | | • | • | • | • | • |
| Integrated RS485 interface | | • | | | | | |
| Number of measured electric quantities | > 140 | > 140 | > 344 | > 160 | > 344 | > 590 | > 590 |
| THD (Total Harmonic Distortion) measurement | • | • | • | • | • | • | • |
| Detailed harmonic analysis | | | • | | • | • | • |

Certifications obtained: GOST, cULus.

Comply with standards: IEC/EN 61010-1; IEC/EN 61000-6-2; IEC/EN 61000-6-3.

Modular digital multimeters

Wide range of operation

- Auxiliary power supply: 100-240VAC/110-250VDC
- Maximum measured rated voltage: 690VAC L-L (600VAC UL/CSA rating)
- Input current: 5A (also 1A for DMG 300 only)
- Voltage measurement range: 20-830VAC L-L
- Current measurement range: 0.01-6A
- Frequency measurement range: 45-66Hz.

Accuracy

DMG 200 and DMG 210

- Voltage: $\pm 0.5\%$ (50-830VAC)
- Current: $\pm 0.5\%$ (0.1-1.1 In)
- Power: $\pm 1\%$
- Active energy: Class 1
- Reactive energy: Class 2.

DMG 300

- Voltage: $\pm 0.2\%$ (50-830VAC)
- Current: $\pm 0.2\%$ (0.1-1.1 In)
- Power: $\pm 0.5\%$
- Active energy: Class 0.5S (MID Class B compliant)
- Reactive energy: Class 2.

USB connection

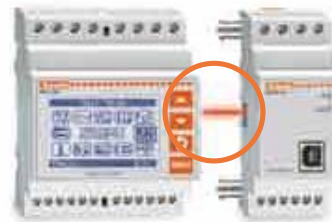
The PC connection for programming and data download takes place in a fast and easy way using the USB port, available on the EXM 10 10 expansion module.

Ethernet connection

The EXM 10 13 expansion module allows the DMG 300 multimeter to be connected in a common Ethernet network and viewed by one or more duly-connected system computers.

Optic interface

The DMG 300 interface with the expansion modules is made by infrared beam. Special connectors provide for a solid and secure fixing of expansion modules.



Compact housing

The multimeter housing is made to DIN standards. The width is just 4 modules.



DIGITAL MULTIMETER 4 module size



Maximum of 3 expansion modules

Up to 3 EXM... expansion modules can be fitted on a DMG 300 and permit to:

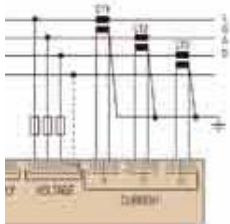
- Communicate
- Control alarms, pulses and tariffs
- Store events with time stamp.

DMG 200: More than 140 measured electrical quantities.

DMG 210: More than 140 measured electrical quantities, with RS485 interface.

DMG 300: More than 344 measured electrical quantities, expandable.

Wiring diagrams



Type of connections:

- Single-phase
- Two-phase
- Three-phase with or without neutral
- Three-phase without neutral, ARON connection
- Balanced three-phase, with or without neutral.

Expansion modules for DMG 300

The DMG 300 multimeter can integrate its functions with the use of the following modules:

- Digital inputs and outputs, static and relay type
- USB, RS232, RS485 and Ethernet interface communications
- Data storage with clock calendar (RTC) for events.



CLICK

Flush-mount expandable digital

Wide range of operation



- Auxiliary power supply: 100-440VAC/110-250VDC
- Maximum measured rated voltage: 690VAC L-L (600VAC UL/CSA rating)
- Input current with CT: 5A only for DMG700; 5A or 1A for DMG800/900/900T
- Voltage measurement range: 20...830V L-L; 10...480V L-N
- Current measurement range for 5A full scale: 0.01-6A for DMG700/800; 0.01-10A for DMG900/900T
- Current measurement range for 1A full scale: 0.01-1.2A
- Frequency measurement range: 45-66Hz for all types; 360-440Hz for DMG900/900T.

Wide range of voltage measurement 20...830VAC L-L



The wide measurement range of voltage inputs allows DMG multimeters to be used in an infinite number of applications.

DIGITAL MULTIMETER

96x96mm



DMG 700: More than 160 measured electrical quantities, expandable.
DMG 800: More than 344 measured electrical quantities, expandable.

Accuracy



- DMG 700**
- Voltage: $\pm 0.5\%$ (50-830VAC)
 - Current: $\pm 0.5\%$ (0.1-1.1 In)
 - Power: $\pm 1\%$
 - Active energy: Class 1.
 - Reactive energy: Class 2.

- DMG 800, DMG 900 and DMG 900T (MID class B)**
- Voltage: $\pm 0.2\%$ (50-830VAC)
 - Current: $\pm 0.2\%$ (0.1-1.1 In)
 - Power: $\pm 0.5\%$
 - Active energy: Class 0.5S (MID Class B compliant)
 - Reactive energy: Class 2.

DC version



DMG 800/900/900T models are also available with 12VDC, 24VDC and 48VDC power supply.

Multiple energy metering with tariff function



More than 20 partial energy meters, clearable.

DIGITAL POWER ANALYZERS

96x96mm



DMG 900: More than 590 measured electrical quantities, expandable.

Expansion modules



These DMG can increase their features with the use of the following expansion modules and satisfy the many diverse needs of Customers. They include:

- Digital inputs and outputs, static and relay type
- Analog inputs and outputs
- USB, RS232, RS485, Ethernet and Profibus-DP interface communications
- Data storage with clock calendar (RTC) for events and data logging
- Data storage with clock calendar (RTC) for events, data logging with Energy Quality.

Multifunction analog inputs and outputs

The programmable analog outputs can be configured in voltage or current. The analog inputs can read signals in the form of voltage, current or temperature from PT100 sensor.

Ethernet gateway function

It allows to read data from a group of DMGs connected together in a RS485 network, using one Ethernet port.

Storage module with clock calendar

It provides for data logging of the measurement trends and storing events and alarms with time stamp.

Energy Quality (EN 50160) module

It permits to control the energy quality to EN 50160 normative, storing events (micro breakings, voltage dips, etc.) with time stamp.



High expandability

The EXP expansion modules are common to all the flush-mount models and transducer. The fitting on the multimeters is done with no need of tools and the connection is made with plug-in connectors.



multimeters and power analyzers

Front panel mounting ease



The mounting on and removal from the panel door are done with no need of tools. A special fixing system provides a quick and immediate operation during both device installation and removal from the panel front.

Programmable alarms with Boolean logic

Temperature detection



The analog input provides for the temperature measurement by sensors, e.g. PT100.



Low-profile housing

DMG 700, DMG 800 and DMG 900 types are only 60mm deep (61.5mm with the terminals covers in place). With the expansion modules mounted, this becomes 80mm.

Safety



Being equipped with sealable switches, the models can have set-up and clearing locks. To avoid connection tampering, sealable terminal covers are also included.



MEASUREMENT TRANSDUCER

REMOTE DISPLAY UNIT

96x96mm



DMG 900T: More than 590 measured electrical quantities, expandable, DIN rail fixing.



DMG 900RD: Remote terminal for viewing electrical quantities measured by the DMG 900T transducer.

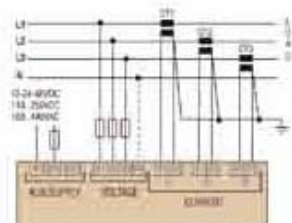
IP65

BEEP!

TOUCH SCREEN

Wiring diagrams

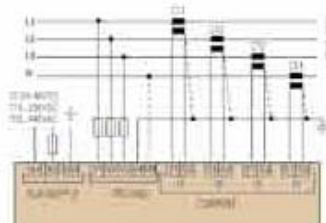
DMG 700 - DMG 800



Type of connections:

- Single-phase
- Two-phase
- Three-phase with or without neutral
- Three-phase without neutral, ARON connection
- Balanced three-phase, with or without neutral.

DMG 900 - DMG 900T



Type of connections:

- Single-phase
- Two-phase
- Two-phase with neutral, measurement of neutral current and neutral-earth voltage
- Three-phase with or without neutral
- Three-phase without neutral, ARON connection
- Balanced three-phase, with or without neutral
- Three-phase with neutral, measurements of neutral current and neutral-earth voltage.

Five voltage and four current inputs

The DMG 900 and DMG 900T types can also provide measurements of neutral current and neutral-earth voltage.

DMG Series

Communications

The DMG instruments provide for communications using the following interface: Ethernet, USB, RS232, RS485 and Fieldbus (Modbus®, Profibus, etc.).



Page customising

The user can freely define by selecting information and measurements to view on the display.



Software

The new DMG series digital multimeters are compatible with the DMK SW and DMK SW 10 remote control software, already used with the DMK series multimeters.

DMK SW

The remote control software is capable of supervising up to 250 digital multimeters connected on one single bus.

DMK SW 10

It includes a data-logger supervision software and the DMK SW remote control software.



2 configurable password levels



The pages with the measurements can be freely consulted while the pages with parameter settings and commands are locked with 2 access levels:

- User
- Installer.

Wiring test



- The wiring test allows to check if the multimeter installation has been carried out correctly.

- The test permits to check the following points:
 - ✓ Reading of the three voltages
 - ✓ Reading of the three currents
 - ✓ Phase sequence
 - ✓ Voltage imbalance
 - ✓ Polarity reversal of one or more CTs
 - ✓ Phase swap between voltage/current.

Graphic LCD screen

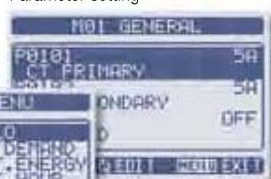
White backlight with intensity adjustment.

5-language texts facilitate:

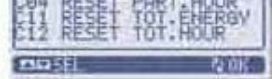
Measurement consultation



Parameter setting



Executing commands



Graphic symbology:

Function choice



Access status

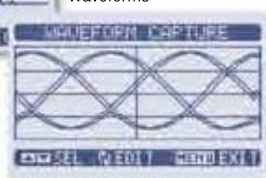


Various types of graphs:

Histograms for harmonics



Waveforms



Measurement (consumption) trends




Extensive temperature range display




-20 +60°C

Main parameters and measurement inputs



| SINGLE, TWO, THREE-PHASE INSTRUMENTS WITH OR WITHOUT NEUTRAL | Digital multimeters | | | Digital multimeters | | Power analyzers | |
|--|-------------------------------|------------|------------|---------------------|------------|-----------------|-------------|
| | DMG 200 | DMG 210 | DMG 300 | DMG 700 | DMG 800 | DMG 900 | DMG 900T |
| Voltage (phase, phase-to-phase and system values) | • | • | • | • | • | • | • |
| Neutral-earth voltage | | | | | | • | • |
| Phase current values | • | • | • | • | • | • | • |
| Phase current values (actual neutral current) | | | | | | • | • |
| Power Factor (PF) | • | • | • | • | • | • | • |
| Cosphi for each phase | | | | | | • | • |
| Frequency | • | • | • | • | • | • | • |
| Maximum and minimum value function (HIGH / LOW) for reading and storage of peak voltage, current, power, PF and frequency values | • | • | • | • | • | • | • |
| Voltage and current asymmetry | • | • | • | • | • | • | • |
| Averaging function | • | • | • | • | • | • | • |
| Peak values (maximum demand) of power and current | • | • | • | • | • | • | • |
| Hour counter (programmable total and partial) | • | • | • | • | • | • | • |
| Total Harmonic Distortion (THD) of voltage and current values | • | • | • | • | • | • | • |
| Harmonic analysis of voltage and current up to 31° order | | | • | | • | | |
| Harmonic analysis of voltage and current up to 63° order | | | | | | • | • |
| Direction of harmonic power flow | | | | | | • | • |
| Active, reactive, apparent, imported and exported energy meters (partial and total) | • | • | • | • | • | • | • |
| Pulse counter for general use (pulse count for consumption of water, gas, etc., with expansion module only) | | | • | • | • | • | • |
| Measurement inputs | 3ph+N voltage, 690VAC max | • | • | • | • | | |
| | 3ph+N+GND voltage, 690VAC max | | | | | • | • |
| | 3ph current, CT /5A | • | • | • | | | |
| | 3ph current, CT /5A or /1A | | | • | • | | |
| | 3ph+N current, CT /5A or /1A | | | | | • | • |

Expandability



| | Digital multimeters | | | Digital multimeters | | Power analyzers | |
|--|---------------------|------------|------------|---------------------|------------|-----------------|-------------|
| | DMG 200 | DMG 210 | DMG 300 | DMG 700 | DMG 800 | DMG 900 | DMG 900T |
| 3 optic modules maximum | | | • | | | | |
| 4 plug-in modules maximum | | | | • | • | • | • |
| Digital input/outputs | | | • | • | • | • | • |
| Analog inputs/outputs | | | | | • | • | • |
| RS232, RS485, USB communications | | | • | • | • | • | • |
| Ethernet communications | | | • | | • | • | • |
| Profibus-DP communications | | | | | • | • | • |
| Event storage with clock calendar (RTC) | | | • | | | | |
| Event storage and data logger + clock calendar (RTC) | | | | | • | • | • |
| Energy Quality (EN 50160) analysis | | | | | | • | • |
| RS485 built-in interface | | • | | | | | |

HOW TO ORDER



DMG 200
DMG 210
DMG 300



EXM...

MODULAR DIGITAL MULTIMETERS

| | |
|----------------|--|
| DMG 200 | Graphic 128x80 pixel LCD multimeter, 100-240VAC / 110-250VDC |
| DMG 210 | Graphic 128x80 pixel LCD multimeter, RS485 port included, 100-240VAC / 110-250VDC |
| DMG 300 | Graphic 128x80 pixel LCD multimeter, harmonic analysis, expandable 100-240VAC / 110-250VDC |

Expansion modules for DMG 300

| | |
|------------------|--|
| EXM 10 00 | 2 digital inputs and 2 static outputs, opto-isolated |
| EXM 10 01 | 2 opto-isolated digital inputs and 2 output relays rated 5A 250VAC |
| EXM 10 10 | Opto-isolated USB interface |
| EXM 10 11 | Opto-isolated RS232 interface |
| EXM 10 12 | Opto-isolated RS485 interface |
| EXM 10 13 | Opto-isolated Ethernet interface |
| EXM 10 20 | Opto-isolated RS485 interface and 2 output relays rated 5A 250VAC |
| EXM 10 30 | Data storage, clock-calendar (RTC) with backup battery for event logging |



DMG 700 - DMG 800



DMG 900



DMG 900T



DMG 900RD



EXP...

FLUSH-MOUNT DIGITAL MULTIMETERS AND POWER ANALYZERS

| | |
|----------------------|--|
| DMG 700 | Graphic 128x80 pixel LCD multimeter, 100-440VAC / 110-250VDC |
| DMG 800 | Graphic 128x80 pixel LCD multimeter, harmonic analysis 100-440VAC / 110-250VDC |
| DMG 800 D048 | Graphic 128x80 pixel LCD multimeter, harmonic analysis 12-24-48VDC |
| DMG 900 | Graphic 128x112 pixel touch screen LCD multimeter, harmonic analysis 100-440VAC / 110-250VDC |
| DMG 900 D048 | Graphic 128x112 pixel touch screen LCD multimeter, harmonic analysis 12-24-48VDC |
| DMG 900T | Measurement transducer, harmonic analysis, 4 V/I channels 100-440VAC / 110-250VDC |
| DMG 900T D048 | Measurement transducer, harmonic analysis, 4 V/I channels 12-24-48VDC |
| DMG 900RD | Graphic 128x112 pixel touch screen LCD remote display unit, with 3m long connecting cable |

Expansion modules for DMG 700, DMG 800, DMG 900 and DMG 900T

| | |
|------------------|--|
| EXP 10 00 | 4 digital opto-isolated inputs |
| EXP 10 01 | 4 static opto-isolated outputs |
| EXP 10 02 | 2 digital inputs and 2 static outputs, opto-isolated |
| EXP 10 03 | 2 output relays rated 5A 250VAC |
| EXP 10 04 | 2 analog opto-isolated inputs, 0/4-20mA or 0-100V or 0...±5V for DMG 800/900 only |
| EXP 10 05 | 2 analog opto-isolated outputs, 0/4-20mA or 0-100V or 0...±5V for DMG 800/900 only |
| EXP 10 10 | Opto-isolated USB interface |
| EXP 10 11 | Opto-isolated RS232 interface |
| EXP 10 12 | Opto-isolated RS485 interface |
| EXP 10 13 | Opto-isolated Ethernet interface for DMG 800/900 only |
| EXP 10 14 | Opto-isolated Profibus-DP interface for DMG 800/900 only |
| EXP 10 30 | Data storage, clock-calendar (RTC), with backup battery for events and data logging, for DMG 800/900 only |
| EXP 10 31 | Data storage with Energy Quality (EN 50160), clock-calendar (RTC) with backup battery for events and data logging, for DMG 900/DMG 900T only |

SOFTWARE AND ACCESSORIES FOR DMK AND DMG

| | |
|--------------------|--|
| DMK SW | Remote control software for PC – DMK22/32/40/52/62-DMG 210/300/700/800/900/900T, complete with 51 C4 connecting cable |
| DMK SW 10 | Data-logger software for DMK 40 and DMG 300/700/800/900/900T, complete with 51 C2 connecting cable; includes DMK SW software |
| 51 C2 | PC- multimeter RS232 connecting cable (1.8m) |
| 51 C4 | PC – 4 PX1 converter connecting cable (1.8m) |
| 51 C5 | Analog modem – multimeter RS232 connecting cable (1.8m) |
| 51 C9 | Analog modem – 4 PX1 converter connecting cable (1.8m) |
| 4 PX1 | RS232/RS485 converter drive 220-240VAC ① |
| 31 PA 96X96 | IP54 front protection cover for DMK2..., DMK3... and DMK 40 |
| PA 96X48 | IP65 front protection cover for DMK0... and DMK1... |
| EXM 80 04 | Sealable set of terminal covers for DMG 200, DMG 210 and DMG300 |



PX1

① 110-120VAC on request.



OTHER DIGITAL MULTIMETERS DMK SERIES



FLUSH MOUNT
96x48mm

DESCRIPTION

MODULAR
3-module

| | | |
|------------------|---|------------------|
| DMK 00 | Single-phase voltmeter | DMK 80 |
| DMK 00 R1 | Single-phase voltmeter with programmable relay output | DMK 80 R1 |
| DMK 01 | Single-phase ammeter | DMK 81 |
| DMK 01 R1 | Single-phase ammeter with programmable relay output | DMK 81 R1 |
| DMK 02 | Single-phase voltmeter or ammeter | DMK 82 |
| DMK 03 | Frequency meter | DMK 83 |
| DMK 03 R1 | Frequency meter with programmable relay output | DMK 83 R1 |
| DMK 04 | Single-phase cosphi meter | DMK 84 |
| DMK 04 R1 | Single-phase cosphi meter with programmable relay output | DMK 84 R1 |
| DMK 10 | Three-phase voltmeter | DMK 70 |
| DMK 10 R1 | Three-phase voltmeter with programmable relay output | DMK 70 R1 |
| DMK 11 | Three-phase ammeter | DMK 71 |
| DMK 11 R1 | Three-phase voltmeter with programmable relay output | DMK 71 R1 |
| DMK 15 | Single-phase voltmeter, ammeter and wattmeter | DMK 75 |
| DMK 15 R1 | Single-phase voltmeter, ammeter and wattmeter, with programmable relay output | DMK 75 R1 |
| DMK 16 | Mini multimeter, 72 electrical quantities | - |
| DMK 16 R1 | Mini multimeter, 72 electrical quantities with programmable relay output | - |



FLUSH MOUNT
96x96mm

DESCRIPTION

MODULAR
6-module

| | | |
|--------------------|--|---------------|
| DMK 20 | 47 electrical quantities | DMK 50 |
| DMK 21 | 47 electrical quantities with energy meters | DMK 51 |
| DMK 22 | 47 electrical quantities with energy meters and RS485 port | DMK 52 |
| DMK 25 | 47 electrical quantities, 12-24VDC power supply | - |
| DMK 26 | 47 electrical quantities, 12-24VDC power supply, with power measurements | - |
| DMK 30 | 251 electrical quantities | DMK 60 |
| DMK 31 | 251 electrical quantities with programmable outputs | DMK 61 |
| DMK 32 | 251 electrical quantities with programmable outputs and opto-isolated RS485 port | DMK 62 |
| DMK 32 D048 | 251 electrical quantities, 12-48VDC power supply, with programmable outputs and opto-isolated RS485 port | - |
| DMK 40 | 251 electrical quantities with data logger, RS485 and RS232 ports | - |

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